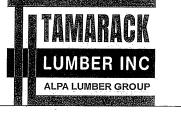


		Products		
PlotID	Length	Product	Plies	Net Qty
J1	14-00-00	9 1/2" NI-40x	1	36
J1DJ	14-00-00	9 1/2" NI-40x	2	12
J2	10-00-00	9 1/2" NI-40x	1	12
J3	6-00-00	9 1/2" NI-40x	1	9
J4	4-00-00	9 1/2" NI-40x	1	3
J5	2-00-00	9 1/2" NI-40x	1	2
B2	16-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B5	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B3	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1 .
B4	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B6	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1

Connector Summary					
Qty	Manuf	Product			
8	H1	IUS2.5/9.5			
3	H1	IUS2.56/9.5			
6	H1	IUS2.56/9.5			
9	H1	IUS2.56/9.5			
3	H3	HUS1.81/10			



FROM PLAN DATED: AUG 2020 BUILDER: ROYALPINE HOMES

SITE: CENTREFIELD

**MODEL:** 38-7

ELEVATION: A, B, C

LOT:

CITY: RICHMOND HILL

SALESMAN: WILL GARCIA

**DESIGNER:** LBV **REVISION:** AJ

NOTES:

REFER TO THE **NORDIC INSTALLATION**GUIDE FOR PROPER STORAGE AND

INSTALLATION.

SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2 S.P.F REQ'D UNDER INTERIOR UNIFORM LOAD BEARING WALLS. MULTIPLE SQUASH BLOCKS REQ'D UNDER CONCENTRATED LOADS. SEE FIGURE 1. CANTILEVERED JOISTS INCLUDING CANT' OVER BRICK REIL-JOIST BLOCKING ALONG BEARING AND RIMBOARD CLOSURE AT ENDS. SEE FIGURES 4 & 5 FOR REINFORCEMENT REQUIREMENTS. FOR HOLES INCLUDING DUCT CHASE AND FIELD CUT OPENINGS SEE FIGURE 7, TABLES 1 & 2. CERAMIC TIL APPLICATION AS PER O.B.C 9.30.6.

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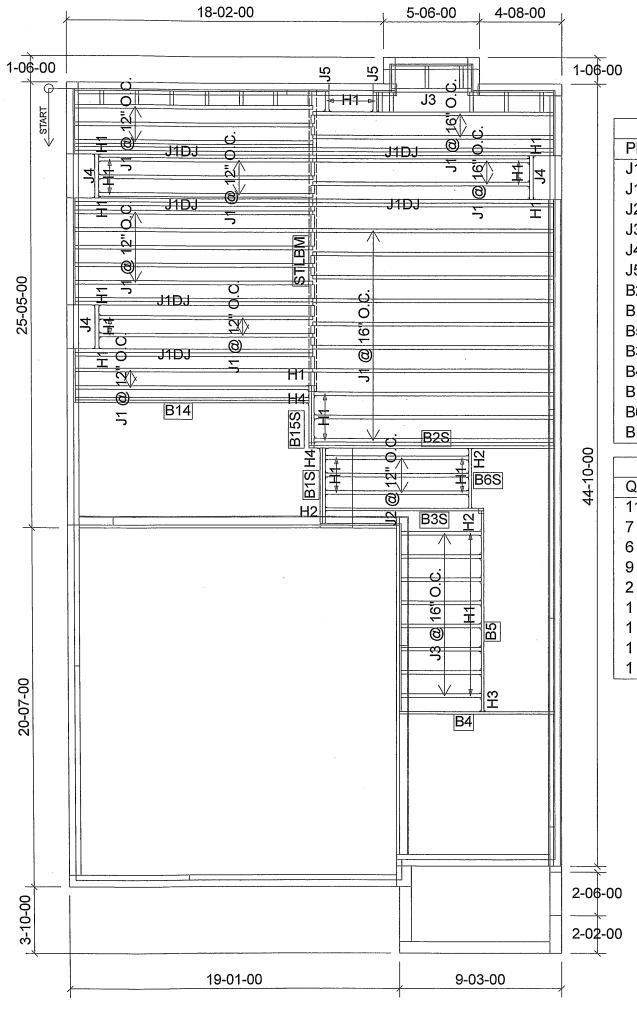
**DATE:** 2021-06-04

1st FLOOR

LOADING:

DESIGN LOADS: L/480.000 LIVE LOAD: 40.0 lb/ft<sup>2</sup> DEAD LOAD: 15.0 lb/ft<sup>2</sup> TILE LOAD: 20.0 lb/ft<sup>2</sup>

**SUBFLOOR:** 3/4" GLUED AND NAILED



		Products		
PlotID	Length	Product	Plies	Net Qty
J1	14-00-00	9 1/2" NI-40x	1	29
J1DJ	14-00-00	9 1/2" NI-40x	2	12
J2	10-00-00	9 1/2" NI-40x	1	3
J3	6-00-00	9 1/2" NI-40x	1	9
J4	4-00-00	9 1/2" NI-40x	1	3
J5	2-00-00	9 1/2" NI-40x	1	2
B2S	16-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B14	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B5	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B3S	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B4	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1.	1
B1S	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B6S	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B15S	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2

Connector Summary					
Qty	Manuf	Product			
11	H1	IUS2.56/9.5			
7	H1	IUS2.56/9.5			
6	H1	IUS2.56/9.5			
9	H1	IUS2.56/9.5			
2	H2	HUS1.81/10			
1	H2	HUS1.81/10			
1	H3	HUS1.81/10			
1	H4	HGUS410			
1	H4	HGUS410			



FROM PLAN DATED: AUG 2020 **BUILDER: ROYALPINE HOMES** 

**SITE**: CENTREFIELD

**MODEL:** 38-7

**ELEVATION:** A, B, C

LOT:

**CITY: RICHMOND HILL** 

**SALESMAN: WILL GARCIA** 

**DESIGNER:** LBV **REVISION:** AJ

## NOTES:

REFER TO THE NORDIC INSTALLATION GUIDE FOR PROPER STORAGE AND

INSTALLATION.

**SQUASH BLOCKS** OF 2x4, 2x6, 2x8 #2 S.P. REQ'D UNDER INTERIOR UNIFORM LOAD BEARING WALLS. MULTIPLE SQUASH **BLOCKS** REQ'D UNDER CONCENTRATED LOADS. SEE FIGURE 1. CANTILEVERED JOISTS INCLUDING CANT' OVER BRICK RI I-JOIST BLOCKING ALONG BEARING AND RIMBOARD CLOSURE AT ENDS. SEE FIGURES 4 & 5 FOR REINFORCEMENT REQUIREMENTS. FOR HOLES INCLUDING DUCT CHASE AND FIELD CUT OPENINGS SEE FIGURE 7, TABLES 1 & 2. CERAMIC T APPLICATION AS PER O.B.C 9.30.6.

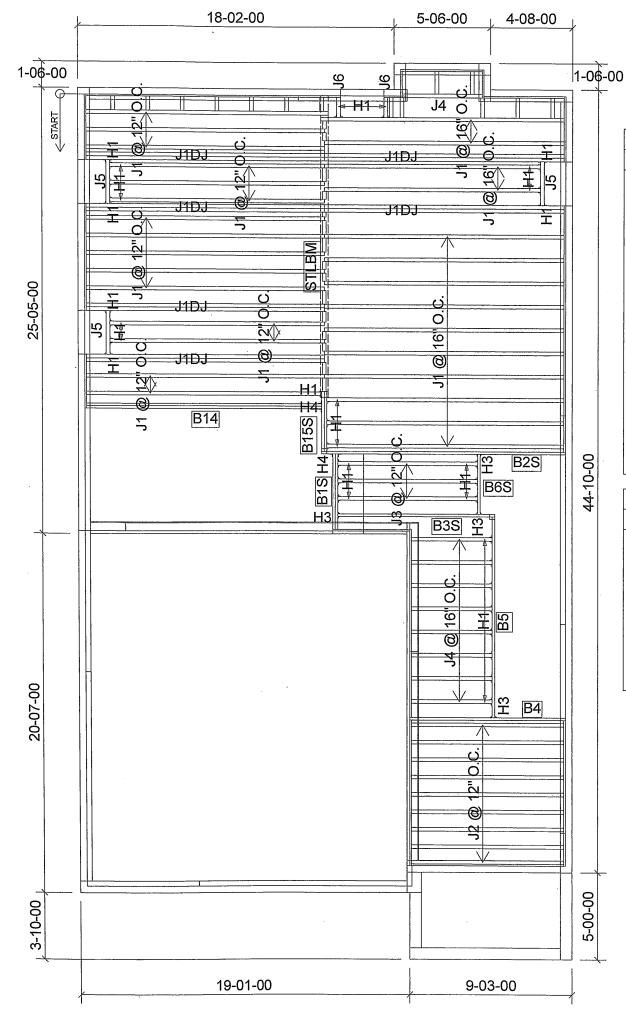
## LOADING:

DESIGN LOADS: L/480.000 LIVE LOAD: 40.0 lb/ft2 DEAD LOAD: 15.0 lb/ft<sup>2</sup> TILE LOAD: 20.0 lb/ft<sup>2</sup>

SUNKEN OPTION | SUBFLOOR: 3/4" GLUED AND NAILED

**DATE:** 2021-06-05

1st FLOOR



		Products		
PlotID	Length	Product	Plies	Net Qty
J1	14-00-00	9 1/2" NI-40x	1	29
J1DJ	14-00-00	9 1/2" NI-40x	2	12
J2	10-00-00	9 1/2" NI-40x	1	9
J3	8-00-00	9 1/2" NI-40x	1	3
J4	6-00-00	9 1/2" NI-40x	1	9
J5 .	4-00-00	9 1/2" NI-40x	1	3
J6	2-00-00	9 1/2" NI-40x	1	2
B2S	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B14	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B5	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B3S	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B4	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B1S	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B6S	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B15S	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2

Connector Summary						
Qty	Manuf	Product				
11	H1	IUS2.56/9.5				
7	H1	IUS2.56/9.5				
6	H1	IUS2.56/9.5				
9	H1	IUS2.56/9.5				
3	H3	HUS1.81/10				
1	H3	HUS1.81/10				
1	H4	HGUS410				
1	H4	HGUS410				



FROM PLAN DATED: AUG 2020

**BUILDER:** ROYALPINE HOMES **SITE:** CENTREFIELD

MODEL: 38-7

**ELEVATION:** A, B, C

LOT:

CITY: RICHMOND HILL

SALESMAN: WILL GARCIA

DESIGNER: LBV REVISION: AJ

## NOTES:

REFER TO THE **NORDIC INSTALLATION**GUIDE FOR PROPER STORAGE AND

INSTALLATION.

SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2 S.P REQ'D UNDER INTERIOR UNIFORM LOAD BEARING WALLS. MULTIPLE SQUASH BLOCKS REQ'D UNDER CONCENTRATED LOADS. SEE FIGURE 1. CANTILEVERED JOISTS INCLUDING CANT' OVER BRICK RI I-JOIST BLOCKING ALONG BEARING AND RIMBOARD CLOSURE AT ENDS. SEE FIGURES 4 & 5 FOR REINFORCEMENT REQUIREMENTS. FOR HOLES INCLUDING DUCT CHASE AND FIELD CUT OPENINGS SEE FIGURE 7, TABLES 1 & 2. CERAMIC T APPLICATION AS PER O.B.C 9.30.6.

## LOADING:

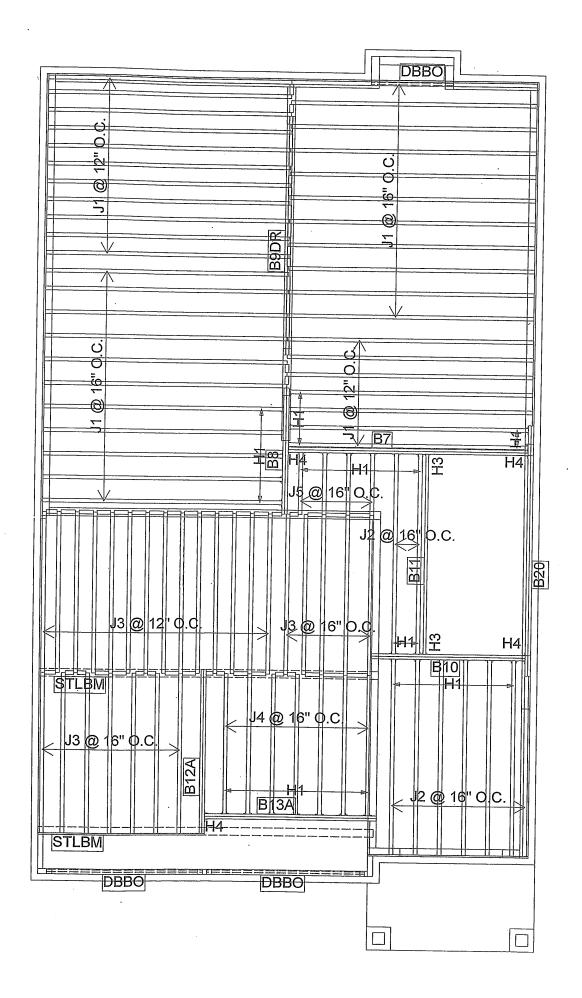
DESIGN LOADS: L/480.000 LIVE LOAD: 40.0 lb/ft<sup>2</sup> DEAD LOAD: 15.0 lb/ft<sup>2</sup> TILE LOAD: 20.0 lb/ft<sup>2</sup>

SUNKEN MUDROOM

SUBFLOOR: 3/4" GLUED AND NAILED

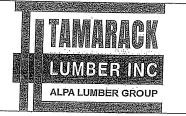
1st FLOOR

**DATE:** 2021-06-05



	-	Products		
PlotID	Length	Product	Plies	Net Qty
J1	14-00-00	9 1/2" NI-40x	1	40
J2	12-00-00	9 1/2" NI-40x	1	9
J3	10-00-00	9 1/2" NI-40x	1	26
J4	8-00-00	9 1/2" NI-40x	1	7
J5	4-00-00	9 1/2" NI-40x	1	4
B20	16-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B7	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B11	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B10	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B12A	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B13A	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B8	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B9DR	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	3	3

Connector Summary						
Qty	Manuf	Product				
32	H1	IUS2.56/9.5				
2	H3	HUS1.81/10				
4	H4	HGUS410				



FROM PLAN DATED: AUG 2020

**BUILDER: ROYALPINE HOMES** 

SITE: CENTREFIELD

MODEL: 38-7 ELEVATION: A

LOT:

CITY: RICHMOND HILL

SALESMAN: WILL GARCIA

DESIGNER: LBV REVISION:

## NOTES:

REFER TO THE **NORDIC INSTALLATION**GUIDE FOR PROPER STORAGE AND
INSTALLATION.

SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2 S REQ'D UNDER INTERIOR UNIFORM LOA BEARING WALLS. MULTIPLE SQUASH BLOCKS REQ'D UNDER CONCENTRATE LOADS. SEE FIGURE 1. CANTILEVERED JOISTS INCLUDING CANT' OVER BRICK I-JOIST BLOCKING ALONG BEARING ANI

I-JOIST BLOCKING ALONG BEARING ANI RIMBOARD CLOSURE AT ENDS. SEE FIGURES 4 & 5 FOR REINFORCEMENT REQUIREMENTS. FOR HOLES INCLUDIN DUCT CHASE AND FIELD CUT OPENING SEE FIGURE 7, TABLES 1 & 2. CERAMIC APPLICATION AS PER O.B.C 9.30.6.

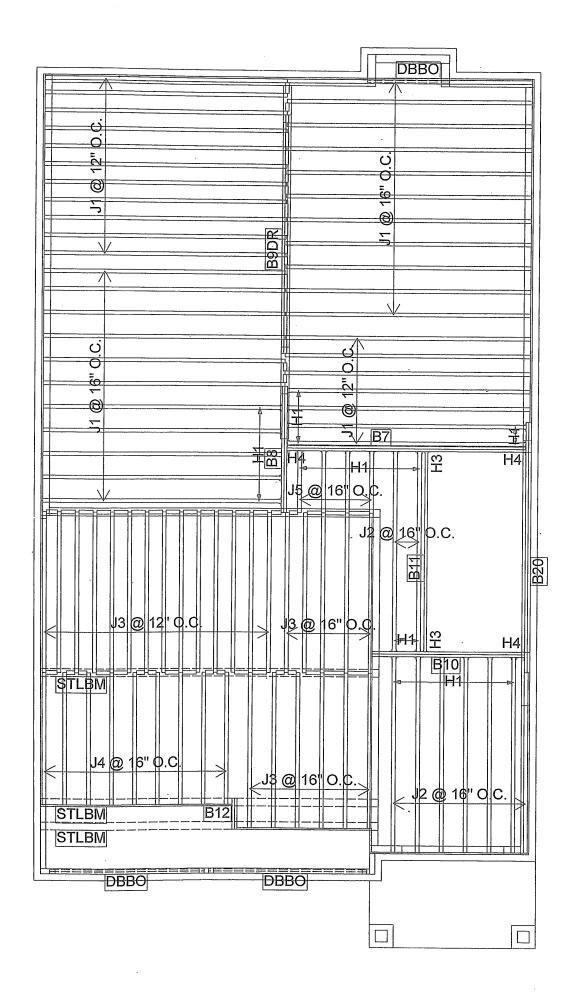
## LOADING:

DESIGN LOADS: L/480.000 LIVE LOAD: 40.0 lb/ft<sup>2</sup> DEAD LOAD: 15.0 lb/ft<sup>2</sup> TILE LOAD: 20.0 lb/ft<sup>2</sup>

2ND FLOOR

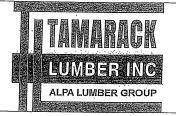
DATE: 2020-10-20

SUBFLOOR: 5/8" GLUED AND NAILED



		Products		:
PlotID	Length	Product	Plies	Net Qty
J1	14-00-00	9 1/2" NI-40x	1	40
J2	12-00-00	9 1/2" NI-40x	1	9
J3	10-00-00	9 1/2" NI-40x	1	25
J4	8-00-00	9 1/2" NI-40x	1	9
J5	4-00-00	9 1/2" NI-40x	1	4
B20	16-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B7	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B11	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B10	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B8	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B12	2-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B9DR	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	3	3

Connector Summary						
Qty Manuf		Product				
25	H1	IUS2.56/9.5				
2	2 H3 HUS1.81					
3	H4	HGUS410				



FROM PLAN DATED: AUG 2020

**BUILDER: ROYALPINE HOMES** 

SITE: CENTREFIELD

MODEL: 38-7
ELEVATION: B, C

LOT:

CITY: RICHMOND HILL

SALESMAN: WILL GARCIA

DESIGNER: LBV REVISION: Ibv

NOTES:

REFER TO THE **NORDIC INSTALLATIO**I GUIDE FOR PROPER STORAGE AND

INSTALLATION.

SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2
REQ'D UNDER INTERIOR UNIFORM LO/BEARING WALLS. MULTIPLE SQUASH
BLOCKS REQ'D UNDER CONCENTRATE
LOADS. SEE FIGURE 1. CANTILEVEREI
JOISTS INCLUDING CANT' OVER BRICH
I-JOIST BLOCKING ALONG BEARING AN
RIMBOARD CLOSURE AT ENDS. SEE
FIGURES 4 & 5 FOR REINFORCEMENT
REQUIREMENTS. FOR HOLES INCLUDIN
DUCT CHASE AND FIELD CUT OPENING
SEE FIGURE 7, TABLES 1 & 2. CERAMINAPPLICATION AS PER O.B.C 9.30.6.

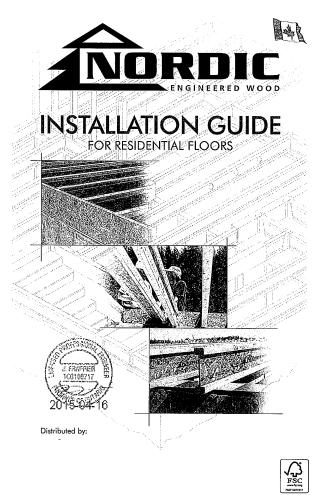
DATE: 2020-10-20

2ND FLOOR

## LOADING:

DESIGN LOADS: L/480.000 LIVE LOAD: 40.0 lb/ft<sup>2</sup> DEAD LOAD: 15.0 lb/ft<sup>2</sup> TILE LOAD: 20.0 lb/ft<sup>2</sup>

SUBSLOOR: 5/8" GLUED AND NAILED



## SAFETY AND CONSTRUCTION PRECAUTIONS

Do not walk on I-joists until fully fastened and braced, or serious inju-ries can result.



Never stack building materials over unsheathed I-joists. Once sheathed, do not over-stress I-joist with concentrated loads from

## I-joists are not stable until completely installed, and will not carry any load until fully braced and sheathed. Avoid Accidents by Following these Important Guidelines:

- Brace and notil each I-joist as it is installed, using hangers, blacking panels, rim board, and/or cross-bridging at joist ends. When I-joists are applied continuous over intarior supports and a load-bearing wall is planned at that location, blacking will be required at the interior support.
- When the building is completed, the floor sheathing will provide lateral support for the top flanges of the I-joists. Until this sheathing is applied, temporary bracing, often called struts, or temporary sheathing must be applied to prevent I-joist rollover or buckling.
- to prevent House received a security.

  \*\*Emprory bracing or structs must be 1x4 inch minimum, at least 8 feet long and spaced no more than 8 feet an centre, and must be secured with a minimum of two 2-1/27 noils fostened to the top surface of each I-joist. Noil the bracing to a lateral restraint at the end of each boy. Lop ends of adjoining bracing over at least two l-inists
- Or, sheathing (temporary or permanent) can be nailed to the top flange of the first 4 feet of I-joists at the end of the bay.
- 3. For cantilevered I-joists, brace top and bottom flanges, and brace ends with closure panels, rim board, or cross-bridging.
- 4. Install and fully nail permanent sheathing to each I-joist before placing loads on the floor system. Then, stack building materials over beams or walls only. 5. Never install a damaged I-joist.

Improper storage or installation, failure to follow applicable building codes, failure to follow span ratings for Nordic I-joists, failure to failow allowable hole sizes and locations, or failure to use web stiffeners when required no result in serious accidents. Follow these installation guidelines corefully.

## MAXIMUM FLOOR SPANS

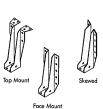
- . Maximum clear spans applicable to simple-span o . makini un ceer spins opprecion to simple-spin of multiple-spin of multiple-spin of modeled if door contraction with a design live load of 40 ppt and dead load of 15 ppt. The ultimation of the spin of the design limit of the spin of
- 2. Spans are based on a composite floor with glued-nailed oriented strand board (CSB) sheathing with a minimum thickness of S/B inch for a joist spacing of 19.2 inches or less, or 3/4 inch for joist spacing of 24 inches. Adhesive shall meet the requirements given in CGBS-7.1.2.6 Standard. No concrete topping or bridging element was assumed. Increased spans may be achieved with the used of gypsum and/or a row of blocking at mid-span.
- Minimum bearing length shall be 1-3/4 inches for the end bearings, and 3-1/2 inches for the intermediate bearings.
- Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except a required for hangers.
- This span chart is based on uniform loads. For application with other than uniform loads, an engineering analysis made required based on the use of the design properties.
- 6. Tables are based on Limit States Design per CAN/CSA O86-09 Standard, and NBC 2010.
- 7. SI units conversion: 1 inch = 25.4 mm 1 foot = 0.305 m

### MAXIMUM FLOOR SPANS FOR NORDIC I-JOISTS SIMPLE AND MUITIPLE SPANS

	Joist		Simple	spans			Multiple	e spans	Service Service
Joist Depth	Depth Series		On centre spacing			On centre spacing			
		12 <sup>u</sup>	16"	19.2	24 <sup>u</sup>	12"	16"	19.2"	24"
73.630	NI-20	15'-1"	14'-2'	13'-9*	13'-5"	16'-3'	15'-4"	14'-10'	14'-7'
1	NI-40x	16'-1"	15'-2"	14'-8"	14'-9"	17-5	16'-5'	15'-10"	15'-5"
9-1/2"	NI-60	16'-3"	15'-4"	14'-10"	14'-11'	17-7	16'-7"	16'-0"	16'-1"
100	NI-70	17'-1"	16'-1"	15'-6"	15'-7"	18-7	17'-4"	16'-9"	16'-10'
1.543675	NI-80	17'-3"	16'-3"	15'-8'	15'-9"	18'-10"	17'-6"	16'-11'	17'-0"
	NI-20	16'-11'	16'-0"	15'-5"	15'-6"	18'-4"	17'-3"	16'-8'	16'-7"
2000 Tab	NI-40x	18'-1"	17'-0"	16'-5"	16'-6"	20-0	18'-6"	17'-9'	17-7*
140,000	NI-60	18'-4"	17'-3"	16'-7"	16'-9"	20-3	18'-9'	18'-0'	18-1"
11-7/8*	NI-70	19'-6"	18'-0"	17'-4"	17'-5"	21'-6"	19'-11'	19'-0"	19'-1"
10.445	NI-80	19'-9"	18'-3"	17'-6"	17'-7"	21'-9"	20'-2"	19'-3"	19'-4"
s safferor N	NI-90	20'-2"	18'-7"	17'-10'	17'-11"	22'-3"	20'-7"	19-8	19-9
184.30	NI-90x	20'-4"	18'-9"	17'-11"	18'-0"	22'-5"	20-9	19-10	19-11
45 TUBER 15	NI-40x	20'-1"	18'-7"	17'-10"	17'-11"	22'-2'	20-6	19'-8'	19'-4"
1000	NI-60	20'-5"	18'-11"	18'-1"	18'-2"	22'-7"	20'-11"	20.0	20-1
	NI-70	21 - 7	20'-0"	19'-1"	19'-2"	23'-10"	22'-1"	21'-1"	21'-2"
14"	NI-80	21'-11'	20'-3"	19'-4"	19'-5"	24'-3'	22'-5"	21'-5"	21'-6"
	NI-90	22'-5"	20'-8"	19'-9"	19'-10"	24'-9'	22'-10"	21'-10'	21'-10"
1,000,000,000	NI-90x	22'-7"	20'-11"	19'-11"	20'-0"	25'-0'	23'-1"	22'-0"	22'-2'
25 NO 425	NI-60	22'-3'	20'-8"	19'-9"	19'-10"	24'-7'	22'-9'	21'-9'	21'-10'
118.4786	NI-70	23'-6"	21'-9"	20'-9"	20'-10"	26'-0"	24'-0'	22-11	23-0
16*	NI-80	23'-11"	22'-1"	21'-1"	21'-2'	26'-5'	24'-5'	23'-3"	23-4
1000	NI-90	24-5	22'-6"	21'-5"	21'-6"	26'-11"	24'-10°	23-9	23'-9"
<b>全国的产生</b>	NI-90x	24'-8"	22'-9"	21'-9"	21'-10"	27'-3'	25'-2"	24'-0'	24'-1"

## I-JOIST HANGERS

- Hangers shown illustrate the three most commonly used metal hangers to support I-joists.
- 2. All nailing must meet the hanger
- Hangers should be selected bosed on the joist depth, flange width and load capacity based on the maximum spans.
- 4. Web stiffeners are required when the



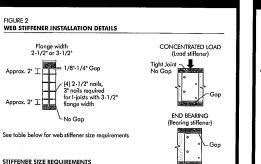
## STORAGE AND HANDLING GUIDELINES

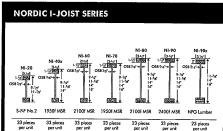
- Bundle wrap can be slippery when wet. Avoid walking on wrapped
- 2. Store, stack, and handle 1-joists vertically and level only. -3. Always stack and handle I-joists in the upright position only.
- 4. Do not store I-joists in direct contact with the ground and/or flatwise
- 5. Protect 1-joists from weather, and use spacers to separate bundles.
- 6. Bundled units should be kept intact until time of installation.
- 7. When handling I-joists with a crane on the job site, take a few simple precautions to prevent damage to the I-joists and injury
- Pick I-joists in bundles as shipped by the supplier.
- Orient the bundles so that the webs of the I-joists are vertical.
- Pick the bundles at the 5th points, using a spreader bar if necessary
- 8. Do not handle I-joists in a horizontal orientation.
- 9. NEVER USE OR TRY TO REPAIR A DAMAGED 1-JOIST.

# WEB STIFFENERS

- A bearing stiffener is required in all engineered applications with factored reactions greater than shown in the l-joist properties table found of the l-joist Construction Guide (C101). The gap between the stiffener and the flange is at the top.
- A bearing stiffener is required when sides of the hanger do not extend up to, and support, the top flange. The gap between the
- \*\*A load stiffener is required at locations where a factored concentrated load greate than 2,370 libs is applied to the top flange between supports, or in the case of a cantillever, anywhere between the cantilever, anywhere between the cantilever and the support. These values are for standard term load duration, and may be adjusted for other load durations as permit by the code. The gap between the stiffener and the flange is at the bottom.

SI units conversion: 1 inch = 25.4 mn





Chantiers Chibougamau Ltd. harvests its own trees, which enables Nove Channers Unlocugamou Ltd. narvests its own news, which is naturally products to adhere to strict quality control procedures through \$400.000 manufacturing process. Every phase of the operation, from forest in the finished product, reflects our commitment to quality.

Nordic Engineered Wood I-joists use only finger-jointed back spirite file lumber in their flanges, ensuring consistent quality, superior street in their flanges, ensuring consistent quality, superior street in their flanges. (M)> longer span carrying capacity.

## INSTALLING NORDIC I-JOISTS

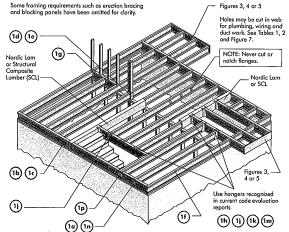
1. Before laying out floor system components, verify that I-joist flange widths match hanger widths. If not, continuous

- 2. Except for cutting to length, I-joist flanges should never be cut, drilled, or notched.
- 3. Install I-joists so that top and bottom flanges are within 1/2 inch of true vertical alignment. 4. I-joists must be anchored securely to supports before floor sheathing is attached, and supports be level
- 5. Minimum bearing lengths: 1-3/4 inches for end bearings and 3-1/2 inches for intermediate bearings
- 6. When using hangers, seat I-joists firmly in hanger bottoms to minimize settlement.

7. Leave a 1/16-inch gap between the !-joist end and a header.

- 8. Concentrated loads greater than those that can normally be expected in residential construction should only be applied to the top surface of the top flange. Normal concentrated loads include track lighting fixtures, audio equipment and security cameras. Never suspend unusual or heavy loads from the I-joist's bottom flange. Whenever possible, suspend all concentrated loads from the top of the I-joist. Or, attach the load to blocking that has been securely fastened to the I-joist webs.
- 9. Never install I-joists where they will be permanently exposed to weather, or where they will remain in direct contact with
- 10. Restrain ends of floor joists to prevent rollover. Use rim board, rim joists or I-joist blocking panels.
- 11. For I-joists installed over and beneath bearing walls, use full depth blocking panels, rim board, or squash blocks (cripple members) to transfer gravity loads through the floor system to the wall or foundation below. 12. Due to shrinkage, common framing lumber set on edge may never be used as blocking or rim boards. I-joist blocking panels or other engineered wood products – such as rim board – must be cut to fit between the I-joists, and an I-joist-compatible depth selected.
- 13. Provide permanent lateral support of the bottom flange of all I-joists at interior supports of multiple-span joists. Similarly, support the bottom flange of all craillevered I-joists of the end support next to the cantilever extension. In the completed structure, the gypsum wallboard ceiling provides this lateral support. Until the final finished ceiling is applied, temporary bracing or struts must be used.
- 14. If square-edge panels are used, edges must be supported between 1-joists with 2x4 blocking. Glue panels to blocking to minimize squeeks. Blocking is not required under structural finish flooring, such as wood strip flooring, or if a separate underlayment layer is installed.
- 15. Nail spacing: Space nails installed to the flange's top face in accordance with the applicable building code requirements of approved building plans.

## TYPICAL NORDIC I-JOIST FLOOR FRAMING AND CONSTRUCTION DETAIL Some framing requirements such as erection bracing and blocking panels have been omitted for clarity.

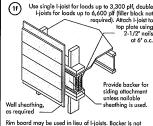


All nails shown in the above details are assumed to be common wire nails unless otherwise noted, 3° (0.122° dia.) common spiral nails may be substituted for 2-1/2° (0.128° dia.) common wire nails. Framing lumber assumed to be Spruce-Pins-Fir No. 2 or better. Individual components not shown to scale for clarity.

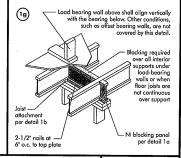
# (Te)

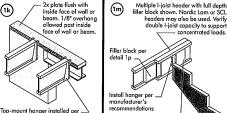
(I)

bearing below. Install squas blocks per detail 1d. Match bearing area of blocks below to post above.



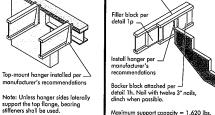
Rim board may be used in lieu of l-joists. Backer is not required when rim board is used. Bracing per code sho carried to the foundation.





Flange Width Web Stiffener Size Each Side of Web

1-1/2" x 2-5/16" minimum width

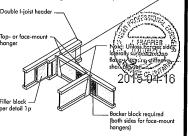


Maximum support capacity = 1,620 lbs.

(1n) Do not bevel-cut joist beyond inside face of wall \_\_\_\_\_ Attach-I-joist per detail 1b

Note: Blocking required at bearing for lateral support, not shown for clarity.

 Bocker block (use if hanger load exceeds 360 lbs)
 Before installing a backer block to a double I-joist, drive three
 additional 3\* nails through the webs and filler block where the
 backer block will fit. Clinch. Install backer tight to top flange.
 Use twelve 3\* nails, clinched when possible. Maximum factored once for hanger for this detail = 1,620 lbs. —



or hanger capacity see hanger manufacturer's recommendations. erify double I-joist capacity to support concentrated loads.

BACKER BLOCKS (Blocks must be long enough to permit required

Flange Width	Material Thickness Required*	Minimum Depth**
2-1/2"	1"	5-1/2"
3-1/2"	1-1/2"	7-1/4"

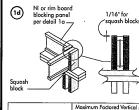
- Minimum grade for backer block material shall be S-P-F No. 2 or petter for solid sawn lumber and wood structural pane o CAN/CSA-O325 or CAN/CSA-O437 Standard.
- For face-mount hongers use net joist depth minus 3-1/4" for joists with 1-1/2" thick flanges. For 2" thick flanges use net depth minus 4-1/4".

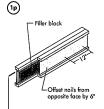
2-1/2" nails a 6" o.c. to top
plate (when used
for lateral shear
transfer, nail to
bearing plate
with same nailing
as required for
decking) One 2-1/2" face nail -

(1b)

1-1/8" Rim Board Plus \*The uniform vertical load is limited to a rim board depth of 16 inches or less and is based on standard term load duration. It shall not be used in the design of a banding member, such as joist, header, or rafter. For concentrated vertical load transfer, see detail 1d.







Top- or face-mount hanger -installed per manufacturer's

For nailing schedules for multiple

Note: Unless hanger sides laterally support the top flange, bearing stiffeners shall be used.

 Leave a 1/8 to 1/4-inch gap between top of filler block and bottom of top I-joist 3. Filler block is required between joists for full length of span. tull length of span.

Notil joist stagether with two rows of 3" nails at 12 inches o.c. (clinched when possible) on each side of the double 1-joist. Total of four nails per foot required. If nails can be clinched, only two nails per foot are required.

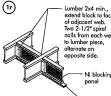
(lk)

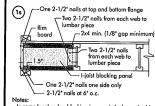
5. The maximum factored load that may be applied to one side of the double joist using this detail is 860 lbf/ft. Verify double I-joist capacity. -1/8" to 1/4" gap between top flange and filler block

 Support back of I-joist web during noiling to prevent damage to web/flange connection.

| Company | C 2-1/8" x 12" 3-1/2" x 11-7/8" 1-1/2" 14" 16" 3-1/2" x 11-7/8" 2" 11-7/8" 16"

3" x 7" 3" x 9" 3" x 11"



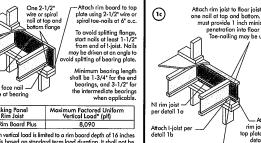


Notes:

In some local codes, blocking is prescriptively required in
the first joist space (or first and second joist space) next to
the starter joist. Where required, see local code requirement for spacing of the blocking. All nails are common spiral in this detail.

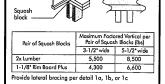


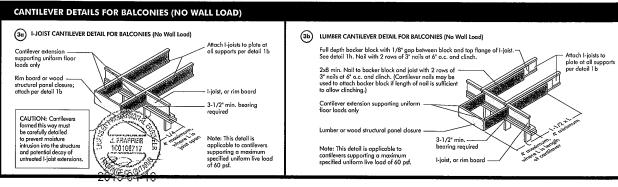
3,300 \*The uniform vertical load is limited to a joist depth of 16 inches or less and is based on standard term load duratio it shall not be used in the design of a bending member, such as joist, header, or rafter. For concentrated vertical load transfer, see detail 1d.

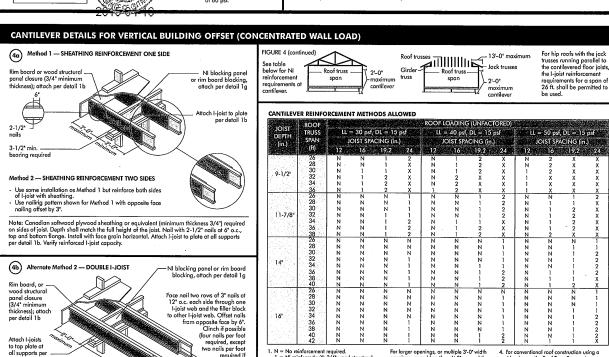


A PROPPLER

2015-04-16







## Attach I-joists to top plate at all supports per detail 1b, 3-1/2" min. bearing For larger openings, or multiple 3'-0' width openings spaced less than 6'-0' o.c., additional joists beneath the opening's cripple N = No reinforcement required. N = NI reinforced with 3/4" wood structural. For conventional roof construction using a ridge beam, the Roof Truss Span column above is equivalent to the distance between 1 = NI reinforced with 3/4" wood structural panel on one side only. 2 = NI reinforced with 3/4" wood structural panel on both sides, or double 1-joist. X = Try a deeper joist or closer spocing. 2. Maximum design lood shall be: 15 ps froof dead lood, 55 psf floor total load, and 80 plf wall load. Wall load is based on 3-0" maximum width window or door openings. ional joist benedin the opening's cripple studs may be required. 3. Toble applies to joists 12' to 24' o.c. that meet the floor span requirements for a design live load of 40 psf and dead load of 15 psf, and a live load deflection limit of L/480. Use 12' o.c. requirements for lesser spacing. the supporting wall and the ridge beam. When the roof is framed using a ridge board, the Roof Truss Span is equivalent to the distance between the supporting walls as if a Block I-joists together with filler blocks for the full length of the reinforcement. For I-joist flange widths greater than 3 inches place an additional row of 3" nails along the centreline of the reinforcing panel from each side. Clinch when possible. the supporting walls as if a BRICK CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET (CONCENTRATED WALL LOAD) Roof trusses | 13'-0" maximum | 13'-0" maximum | Jack trusses | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13'-0" | 13 IGURE 5 (continued) For hip roofs with the jack trusses running parallel to the cantilevered floor joists, the I-joist reinforcement requirements for a span of 26 ft. shall be permitted to — Roof truss — span Provide full depth blocking between joists over support (not shown) --- Roof truss ---span and bottom joist flanges with 2-1/2" nails at 6" o.c. (offset opposite fac nailing by 3" when usin reinforcement on both Note: Canadian softwood plywood sheathing or equivalent (minimum thickness 3/4") required on sides of joist. Depth shall motch the full height of the joist. Noil with 2-1/2" noils of 6" o.c., 100 and bottom flange. Install with face grain horizontal. Attach 1-joist to sides of I-ioist) LL = 30 psf, DL = 15 psf LL = 40 psf, DL = 15 psf LL = 50 psf, DL = 15 psf TRUSS SPAN (ft) JOIST SPACING (in.) 16 19.2 24 12 16 19.2 24 plate at all supports per detail 1b. Verify reinforced I-joist capacity. 100109717 (5b) SET-BACK DETAIL 352 201804 structural panel closure (3/4" minimum thickness), attach per detail 1b. 11 7/8

N = No reinforcement required,
 1 = NI reinforced with 3/4" wood structural

1 = NI reinforced with 3/4\* wood structural panel on one side only.
2 = NI reinforced with 3/4\* wood structural panel on both sides, or double I-joist.
X = Try a desper joist or closer spacing.
2. Maximum design load shall be: 15 pst roof deed load, 55 pst floor tolal load, and 80 plf wall load. Wall load is based on 3-0" maniputs with windows a does on 3-0" maniputs with windows a does on a 3-0".

Attach joists to

Hanger may be used in lieu of solid sawn bloc

... Nail joist end using 3" nails, toe-nail at top and bottom flanges.

Provide full depth blocking - Provide full depth blocking between joists over support (not shown for clarity)
- Attach I-joist to plate at all supports per detail 1 b.
- 3-1/2\* minimum I-joist bearing required.

(5c) SET-BACK CONNECTION

Vertical solid sawn blocks

(2x6 S-P-F No. 2 or better) nailed through joist web and web of girder using 2-1/2" nails.

Alternate for opposite side.

Notes:
- Verify girder joist capacity if the back span exceeds the joist spacing. Attach double I-joist per detail 1p, if required.

## **WEB HOLES**

### RULES FOR CUTTING HOLES AND DUCT CHASE OPENINGS:

- The distance between the inside edge of the support and the centreline of any hole or duct chase opening shall be in compliance with the requirements of Table 1 or 2, respectively.
- 2. I-joist top and bottom flanges must NEVER be cut, notched, or otherwise modified.
- 3. Whenever possible, field-cut holes should be centred on the middle of the web.
- The maximum size hole or the maximum depth of a duct chase opening that can be cut into an 1-joist web shall equal the clear distance between the flanges of the 1-joist minus 1/4 inch. A minimum of 1/8 inch should always be maintained. een the top or bottom of the hole or opening and the adjacent I-joist flange
- The sides of square holes or longest sides of rectangular holes should not exceed 3/4 of the diameter of the maximum round hole permitted at that location.
- 3/4 of the aldimeter of the maximum round hole permitted at that location.

  Where more than one hole is necessary, the distance between adjacent hole edges shall exceed twice the diameter of the largest round hole or twice the size of the largest square hole (or twice the length of the langest side of the langest rectangular hole or duct chase opening) and each hole and duct has opening shall be sized and located in compliance with the requirements of Tables 1 and 2, respectively.
- A knockout is not considered a hole, may be utilized anywhere it occurs, and
  may be ignored for purposes of calculating minimum distances between holes
  and/or duct chase openings.
- Holes measuring 1-1/2 inches or smaller shall be permitted anywhere in a cantilevered section of a joist. Holes of greater size may be permitted subject to
- 9. A 1-1/2 inch hole or smaller can be placed anywhere in the web provided that it neets the requirements of rule number 6 above.
- 10. All holes and duct chase openings shall be cut in a workman-like manner in accordance with the restrictions listed above and as illustrated in Figure 7.
- 11. Limit three maximum size holes per span, of which one may be a duct chase
- 12. A group of round holes at approximately the same location shall be permitted if they meet the requirements for a single round hole circumscribed around them.

Mole 1 DCATION OF CIRCULAR HOLES IN JOIST WEBS Simple or Multiple Span for Dead Loads up to 15 psf and Live Loads up to 40 psf

3000	Joist	200	2 TO 1	HILL I		IL SELEC	THE STATE OF	io Roi	L. K.	DATE:	DOME	KCUUK	or no	LE LUC	0.5	25000	a spon
	Series		SE SE				Ro	und he	le dia	neler (					<b>建模的</b>	200	adjustme
	The second	2.2	擦蹦		<b>617-53</b>		6-1/4		8	8-5/8	AK 18	10	10-3/4	数下数	SAPAS	12-3/4	Factor
	NI-20	0'-7"	1'-6"	2'-10"	4'-3'	5'-8'	6'-0"			***					***		13'-6"
10.8	NI-40x	0.7	1'-6"	3,-0,	4'-4"	6.0.	6-4	***	•••	***		***		***			14'-9'
9-1/2"	N1-60	1'-3"	2'-6"	4'-0"	5'-4"	7:0	7-5*		•••		***	***	***				14511
4 (1944)	NI-70	2'-0"	3'-4"	4'-9"	6:-3"	8'-0"	8'-4"		***	***	***	***			•		15'-7"
11 11 11 11 11	NI-80	2'-3'	3'-6"	5'-0"	6'-6"	8'-2"	8-8*		***			***					15'-9"
\$1.57 D.J	NI-20	0.7	0'-8"	1,-0,	2'-4"	3'-8"	4'-0'	5'-0"	6'-6"	7'-9'							15'-6"
1 7 11 11	NI-40x	0.7	0-8	1'-3'	2.8	4'-0"	4'-4"	5-5*	Ź'-Ô'	8'-4"							16'-6"
	NI-60	0'-7"	1'-8"	3'-0"	4'-3"	5'-9"	6'-0"	7-3*	8'-10"	10:0							16'-9"
11-7/8*	NI-70	1'-3'	2'-6"	4'-0"	5-4	6-9	7'-2"	8-4	10-0	11'-2"							17'-5"
	NI-80	1'-6"	2'-10'	4'-2"	5'-6"	7:0"	7-5	8.6	10:3	11:4	***	***		***			17'-7"
27 6 3	NI-90	0'-7°	0'-8"	1'-5"	3'-2"	4'-10"	5'-4"	6'-9"	8'-9"	10-2							17-11
	NI-90x	0'-7"	0'-8"	0'-9"	2.5	4'-4"	4'-9"	6'-3"									18'-0"
1000 0000	NI-40x	0-7*	0.8.	0'-8*	1.0.	2'-4"	2'-9'	3'-9'	5:-2"	6'-0"	6.6	8:3"	10-2				17:11
1.75	NI-60	0'-7*	0'-8"	1'-8'	3'-0"	4'-3"	4'-8"	5'-8'	7'-2'	8'-0"	8'-8"	10-4*	11.9				18-2
14"	NI-70	0'-8"	1'-10"	3'-0"	4-5	5'-10"	6'-2"	7:31	8'-9"	9-9	10-4	12'-0".	13'-5"			***	19-2
	NI-80	0'-10"	2'-0"	3'-4"	4-9	6'-2"	6'-5"	7'-6"	9.0	10:0	10.8	12'-4°	13-9		***		19:5*
	NI-90	0-7	0.8	0.10	2'-5"	4'-0"	4-5	5'-9'	7'-5"	8'-8"	9-4	11545	12-11				19.9
	NI-90x	0'-7"	0'-8'	0'-8"	2.0	3'-9"	4'-2"	5-5	7:-3*	8-5	9-2	****					20.0
7.7	NI-60	0'-7'	0.8	0'-8"	1'-6"	2.10	3'-2'	4'-2"	5'-6"	6'-4"	7:0	8-5	9-8	10:2"	12:-21	13'-9"	19'-10"
1 2 2 2 3	NI-70	0'-7"	1'-0"	2:-3*	3'-6"	4'-10'	5-3	6'-3"	7'-8"	8'-6"	9-2	10'-B"	12:0	12'-4'	14'-0"	15'-6'	20'-10"
16*	NI-80	0'-7"	1'-3"	2-6*	3'-10'	5-3*	5'-6"	6'-6'	8'-0"	9.0	9.5	11:0	12-3	12-9	14:5	16'-0"	21.2
4.4 4.7	NI-90	0.7	0'-8"	0'-8"	1'-9'	3'-3"	3'-8'	4'-9"	6'-5"	7:-5*	8.0	9-10"	111-31	11:9	13.9	15'-4"	21.6
3, 1, 20, 1995	NI-90x	0.71	0'-8"	09.	2'-0"	3'-6"	4'-0"	5-0*	6'-9"	7-9"	8-4"	10-2	111.61	12:01		10-4	21:10:

1. Above table may be used for 1-joist spacing of 24 inches on centre or less.
2. Hole location distance is measured from inside face of supports to centre of hole.
3. Distances in this chart are based on uniformly loaded joists.

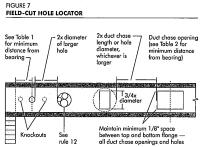
The above table is based on the I-joists used at their maximum span. If the I-joists are placed at less than their full maximum span (s the minimum distance from the centreline of the hale to the face of any support (D) as given above may be reduced as follows:

## D<sub>reduced</sub> = Lactual x D

Where:

## Distance from the inside face of any support to centre of hole, reduced for less-than-maximudiations shall not be less than 6 inches from the face of the support to edge of the hole. SAF = Spon Adjustment Factor given in this table. D = The minimum distance from the middle face of any support to centre of hole from this table. If actual is greater than 1, use 1 in the above colculation for factual. SAF 2015-04-16

nampes suche



Knockouts are prescored holes provided for the contractor's convenience to instellectrical or small plumbing lines. They are 1-1/2 inches in diameter, and are spaced 15 inches on centre along the length of the 1-joist. Where possible, it is preferrible to use hop-fourte instead of



Never drill, cut or notch the flange, or over-cut the web. Holes in webs should be cut with a sharp saw.

For rectangular holes, avoid over-cutting the corners, as this can cause unnecessal stress concentrations. Slightly rounding the corners is recommended. Starting the rectangular hole by drilling a 1-inch diameter hole in each of the four corners and then making the cuts between the holes is another good method to minimize damage to the I-joist.

## DUCT CHASE OPENING SIZES AND LOCATIONS — Simple Span Only

	Joist	LVUD INC	m distan	ce from it					f openin	
Depla	Series				Duct cl	nase leng	th (in.)			
	ALC: UNKNOWN	<b>33</b>	10	12	14	16	18	20	22	24
F 1985	NI-20	4'-1"	4'-5"	4'-10"	5'-4' 6'-5'	5'-8'	6'-1"	6'-6"	7'-1"	7'-5'
2 . 12	NI-40x	5'-3'	5'-8"	6'-0"	6'-5"	6'-10'	7'-3"	7'-8"	8-2	8'-6"
9-1/2*	NI-60	5-4*	5'-9"	6'-2"	6'-7"	7'-1"	7'-5"	8'-0"	8-3	8'-9"
	NI-70	5'-1"	5'-5"	5'-10'	6'-3"	6'-7"	7'-1'	7'-6"	8-1*	8'-4"
100 C 100	NI-80	5'-3'	5'-8'	6.0	6'-5"	6'-10"	7'-3'	7'-8"	8-2*	8'-6"
	NI-20	5'-9*	6'-2'	6'-6"	7'-1"	7'-5'	7'-9'	8'-3"	8-9	9'-4"
	NI-40x	6'-8'	7'-2"	7'-6"	8-1	8,-6,	9-11	9-6*	10'-1".	10-9
2000	NI-60	7'-3'	7'-8"	8-0	8'-6"	9'-0'	9-3	9.6	10'-3"	11'-0"
11-7/8*	NI-70	7'-1"	7'-4"	7'-9'	8-3	8'-7"	9-1"	9.6	10'-1"	10'-4"
	NI-80	7'-2"	7'-7"	8'-0"	8-5	8'-10'	9-3"	9'-8"	10'-2"	10'-8'
	NI-90	7'-6"	7'-11"	8'-4"	8'-9"	9-2	9-7*	10'-1"	10-7	10'-11
	NI-90x	7'-7"	8:11	8'-5"	8-10	9-4	9-8*	10.2	10:8	11:-2
J 13 1 13 1	NI-40x	8'-1'	8'-7"	9.0	9'-6"	10'-1"	10'-7'	11'-2'	12'-0'	12'-8'
	NI-60	8'-9"	9'-3"	9-8	10-1"	10'-6"	iï-i•	111-6*	13'-3'	13:0
14"	NI-70	8'-7"	9-1"	9'-5"	9'-10"	10'-4"	10'-8	111-2*	111-7*	12:31
	NI-80	9.0	9'-3"	9-9*	10:11	10'-7"	iiiii	111-6"	12'-1"	12:-61
	NI-90	9-2	9'-8"	10-0	10:-6"	10-11-	111.5	111.9*	12'-4"	12-11
0.000	NI-90x	9.4	9'-9"	10'-3"	10'-7"	117.17	111.71	12:11	12'-7"	13-2
	NI-60	10'-3'	10'-8"	11'-2"	11'-6"	12'-1"	12'-6"	13'-2'	14'-1'	14-10
	NI-70	10-1	10'-5'	11'-0'	11-4	11:10	12-3	12:-8	13'-3"	14:-0
16"	NI-80	10'-4"	10'-9'	111-31	11.9	12-1	12.7	13-1	13'-8'	14:4*
	NI-90	10'-9'	11'-2'	111-81	12'-0'	12'-6"	13:0	13'-6"	14'-2"	14:-10
	NI-90x	l iii-i•	111-51	iiiin	12:4	່າຂໍ້າກາ	13.3	13.0	14.4	16121

. Above soble may be used for Ljoist spacing of 24 inches on centre or less.

Duct charse opening bottom distance is measured from inside face of supports to centre of opening.

The above toble is based on simple-stop noists only, for other capitications, contact your local distributor.

Distances are based on uniformly loaded floor joints that meet span requirements for a design live blood + 40 psf and deed load of 15 psf, and a live load deflection limit of L/480. For other applications, contact your local distributor.

## INSTALLING THE GLUED FLOOR SYSTEM

- 1. Wipe any mud, dirt, water, or ice from I-joist flanges before gluing.
- 2. Snap a chalk line across the I-joists four feet in from the wall for panel edge alignment and as a boundary for spreading alue
- Spread only enough glue to lay one or two panels at a time, or follow specific recommendations from the glue manufacturer.
- 4. Lay the first panel with tongue side to the wall, and noil in place. This protects the tongue of the next panel from damage when tapped into place with a block and sledgehammer.
- 5. Apply a continuous line of glue (about 1/4-inch diameter) to the top flonge of a single I-joist. Apply glue in a winding pattern on wide areas, such as with double I-joists.
- 6. Apply two lines of glue on 1-joists where panel ends butt to assure proper gluing of each end.
- 7. After the first row of panels is in place, spread glue in the groove of one or two panels at a time before laying the next row. Glue line may be continuous or spaced, but avoid squeeze-out by applying a thinner line (1/8 inch) than used on 1-joist flanges.
- 8. Tap the second row of panels into place, using a block to protect groove edges.
- Stagger end joints in each succeeding row of panels. A 1/8-inch space between all end joints and 1/8-inch at all edges, including T&G edges, is recommended. (Use a spacer tool or an 2-1/2" common nail to assure accurate and consistent spacing.)
- 10. Complete all nailing of each panel before glue sets. Check the manufacturer's recommendation for cure time. (Warm weather accelerates glue setting.) Use 2" ring- or screw-shank nails for panels 3/4-inch thick or less, and 2-1/2" ring- or screw-shank nails for thicker panels. Space nails per the table below. Claer nail spacing may be required by some codes, or for disphragm construction finished deck can be walked on right away and will carry construction loads without damage to the glue boand.

## FASTENERS FOR SHEATHING AND SUBFLOORING(1)

Joist	Panel	Common	Ring Thread	PROFESSION OF	of Fa	teners
Spacing (in.)	Thickness (in.)	Wire or Spiral Nails	Nails ar Screws	Staples	Edges	Interm. Supports
16	5/8	2'	1-3/4"	2'	6"	12'
20	5/8	2"	1-3/4"	2'	6.	12"
24	3/4	2'	1-3/4*	2.	6.	12*

- Fasteners of sheathing and subflooring shall conform to the above table.
- Staples shall not be less than 1/16-inch in diameter or thickness, with not less than a 3/8-inch crown driven with the crown parallel to framing.
- 3. Flooring screws shall not be less than 1/8-inch in diameter.
- Special conditions may impose heavy traffic and concentrated loads that require construction in excess
  of the minimums shown.
- 5. Use only adhesives conforming to CAN/CGSB-71.26 Standard, Adhesives for Field-Gluing Plywood to Lumber Framing for Floor System, applied in accordance with the manufacturer's recommendations. If CSB panels with seeled surfaces and edges are to be used, use only solvent-based glues; check with

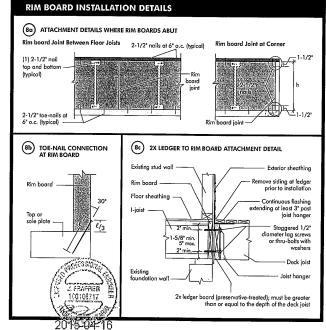
Ref.; NRC-CNRC, National Building Code of Canada 2010, Table 9.23.3.5.

A. For conventional roof construction using a ridge beam, the Roof Truss Span column above is equivalent to the distance belower is expected in the distance below the supporting well and the ridge beam. When the roof is framed using a ridge board, the Roof Truss Span is equivalent to the distance between the supporting walls as if a russ is used.

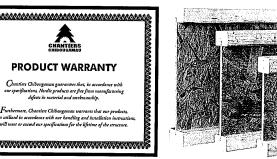
5. Confliered joids supporting grider trusses or oof beams may require additional reinforcing.

For larger openings, or multiple 3-0° width openings spaced less than 6-0° o.c., additional joils beneath the opening's cripple studs may be required. To be opening's cripple studs may be required. To be opening so that the foreign requirements for a delay like the foot span requirements for a delay like of the foot span requirements for a delay like of the object of the foot of the foot defection limit of L/480. Use and 12° o.c. requirements for lesser spacing.

IMPURIANI NOUL: Floor sheathing must be field glued to the I-joist flanges in order to achieve the maximum spans shown in this document. If sheathing is nailed only, I-joist spans must be verified with your local distributor.







l-joist to top plate per detail 1b

(1d)



FSC MAY TOOL 1517

NI-20 9-1/2" 11-7/8" 14" 9-1/2 S-P-F No.2 1950FMSR 2100f MSR 1950f MSR 2100f MSR 2400F MSR NPG Lumber 33 pieces 23 pieces 23 pieces 23 pieces per unit

Refer to the Installation Guide for Residential Floors for additional information CCMC EVALUATION REPORT 13032-R

## **WEB HOLE SPECIFICATIONS**

RULES FOR CUTTING HOLES AND DUCT CHASE OPENINGS:

- 1. The distance between the inside edge of the support and the centreline of any hale or duct chase opening shall be in compliance with the requirements of Table 1 or 2, respectively.

  2. I-joist top and bottom flanges must NEVER be cut, notched, or otherwise modified.

**LOCATION OF CIRCULAR HOLES IN JOIST WEBS** 

Simple or Multiple Span for Dead Loads up to 15 psf and Live Loads up to 40 psf

- Whenever possible, field-cut holes should be centred on the middle of the web.
   The maximum size hole or the maximum depth of a duct chose opening that can be cut into an I-joist web shall equal the clear distance between the flanges of the I-joist minus 1/4 inch. A minimum of 1/8 inch should always be maintained between the top or bottom of the hole or opening and the adjacent I-joist flange.
- 5. The sides of square holes or longest sides of rectangular holes should not exceed 3/4 of the diameter of the maximum round hole permitted at that location.

  6. Where more than one hole is necessary, the distance between adjacent hole edges
- where more man one note is necessary, the alsonce perveen adjacent note edges shall exceed twice the diameter of the largest round hole or twice the size of the largest square hole (or twice the length of the longest side of the langest rectangular hole or duct chose opening) and each hole and duct chose opening shall be sized and located in compliance with the requirements of Tables 1 and 2, respectively.
   A knockout is not considered a hole, may be utilized anywhere it occurs, and may be
- ignored for purposes of calculating minimum distances between hales and/or duct chase openings.
- 8. Holes measuring 1-1/2 inches or smaller are permitted anywhere in a cantilevered section of a joist. Holes of greater size may be permitted subject to verification.
- 9. A 1-1/2 inch hole or smaller can be placed anywhere in the web provided that it meets the requirements of rule number 6 above. 10. All holes and duct chase openings shall be cut in a workman-like manner in accordance with the restrictions listed above and as
  - illustrated in Figure 7. 11. Limit three maximum size holes per span, of which one may be
  - a duct chase opening.

    12. A group of round holes at approximately the same location shall be permitted if they meet the requirements for a single round hale circumscribed around them.

## **DUCT CHASE OPENING SIZES AND LOCATIONS**

			٨	Ainimur	n Dista	nce fro	m Insid	e Face	of Any	Suppor	to Ce	nice of	Hole (ft	- in.)			[ ,]		Minim	um distan	ce from in	side fac	0
Joist Depth	Joist Series						Rou	nd Hol	e Diam	eter (in.	.)						Joist Depth	Joist Series				Duct Ch	١a
Бория	30,103	2	3	4	5	6	6-1/4	7	8	8-5/8	9	10	10-3/4	11	12	12-3/4		***************************************	8	10	12	14	_
9-1/2"	NI-20 NI-40x NI-60 NI-70 NI-80	0'-7" 0'-7" 1'-3" 2'-0" 2'-3"	1'-6" 1'-6" 2'-6" 3'-4" 3'-6"	2'-10" 3'-0" 4'-0" 4'-9" 5'-0"	4'-3" 4'-4" 5'-4" 6'-3" 6'-6"	5'-8" 6'-0" 7'-0" 8'-0" 8'-2"	6'-0" 6'-4" 7'-5" 8'-4" 8'-8"										9-1/2"	NI-20 NI-40x NI-60 NI-70 NI-80	4'-1" 5'-3" 5'-4" 5'-1" 5'-3"	4'-5" 5'-8" 5'-9" 5'-5" 5'-8"	4'-10" 6'-0" 6'-2" 5'-10' 6'-0"	5'-4" 6'-5" 6'-7" 6'-3" 6'-5"	
11-7/8*	NI-20 NI-40x NI-60 NI-70 NI-80 NI-90 NI-90x	0'-7" 0'-7" 0'-7" 1'-3" 1'-6" 0'-7"	0'-8" 0'-6" 1'-6" 2'-6" 2'-10" 0'-8" 0-8	1'-5" 0'-9"	2'-4" 2'-8" 4'-3" 5'-4" 5'-6" 3'-2" 2'-5"	3'-8" 4'-0" 5'-9" 6'-9" 7'-0" 4'-10" 4'-4"	4'-9"	5'-0' 5'-5' 7'-3" 8'-4' 8'-6" 6'-9" 6'-3"	6'-6" 7'-0" 8'-10" 10'-0" 10'-3" 8'-9"	7'-9" 8'-4" 10'-0" 11'-2" 11'-4" 10'-2"							11-7/8*	NI-20 NI-40x NI-60 NI-70 NI-80 NI-90 NI-90x	5'-9' 6'-8' 7'-3' 7'-1'' 7'-2' 7'-6' 7'-7'	6'-2' 7'-2" 7'-8" 7'-4" 7'-7" 7'-11" 8'-1"	6'-6" 7'-6" 8'-0" 7'-9" 8'-0" 8'-4" 8'-5"	7'-1" 8'-1" 8'-6" 8'-3" 8'-5" 8'-9" 8'-10"	
14"	NI-40x NI-60 NI-70 NI-80 NI-90 NI-90x	0'-7" 0'-8" 0'-8" 0'-10" 0'-7"	0'-8" 0'-8" 1'-10" 2'-0" 0'-8"	0'-8" 1'-8" 3'-0" 3'-4" 0'-10" 0'-8"	1'-0' 3'-0' 4'-5' 4'-9' 2'-5' 2'-0'	2'-4" 4'-3" 5'-10" 6'-2" 4'-0" 3'-9"	2'-9" 4'-8" 6'-2" 6'-5" 4'-5" 4'-2"	3'-9" 5'-8" 7'-3' 7'-6" 5'-9"	5'-2" 7'-2" 8'-9" 9'-0" 7'-5" 7'-3"	6'-0' 8'-0' 9'-9' 10'-0' 8'-8'	6'-6" 8'-8" 10'-4' 10'-8' 9'-4" 9'-2"	8'-3" 10'-4" 12'-0" 12'-4" 11'-4"	13'-5" 13'-9"				14*	NI-40x NI-60 NI-70 NI-80 NI-90 NI-90x	8'-1' 8'-9' 8'-7" 9'-0' 9'-2" 9'-4"	8'-7" 9'-3" 9'-1" 9'-3" 9'-8" 9'-9"	9'-0" 9'-8" 9'-5" 9'-9" 10'-0"	9'-6" 10'-1" 9'-10" 10'-1" 10'-6" 10'-7"	
16 <sup>°</sup>	NI-60 NI-70 NI-80 NI-90 NI-90x	0'-7" 0'-7" 0'-7" 0'-7" 0'-7"	0'-8" 1'-0" 1'-3" 0'-8" 0'-8"	0'-8" 2'-3" 2-6" 0'-8" 0'-9"	1'-6" 3'-6" 3'-10' 1'-9" 2'-0"	2'-10' 4'-10' 5'-3" 3'-3" 3'-6*		4-2 6-3 6-6 4-9 5-0	5'-6" 7'-8" 8'-0" 6'-5" 6'-9"	6'-4" 8'-6" 9'-0" 7'-5" 7'-9"	7'-0" 9'-2" 9'-5" 8'-0" 8'-4"	8'-5" 10'-8" 11'-0" 9'-10" 10'-2"	9'-8' 12'-0' 12'-3' 11'-3' 11'-6'	12-4	* 12-2 * 14-0 * 14-5 * 13-9 *	15'-6" 16'-0"	16"	NI-60 NI-70 NI-80 NI-90 NI-90x	10'-3' 10'-1' 10'-9' 11'-1'	10'-8" 10'-5" 10'-9" 11'-2" 11'-5"	11'-2' 11'-0" 11'-3' 11'-8" 11'-10'	11'-6" 11'-4" 11'-9" 12'-0" 12'-4"	
<ol><li>Distant</li><li>The ab</li></ol>	table may to cation distances in this distance to the case of the	hart are bosed	based on the l	on unife i-joists b	ormly to eing us	oded j	oists.				mum d	istance	as given	apove	: may k	oe reduced	<ol> <li>Duct che</li> <li>The above</li> <li>Distance</li> </ol>	ble may be se opening ve table is ba s are based to ost and d	lacation of used on sir on unifor	listance is mple-spar mly loade	measured njoists only ad floor joi	d from in y. For oth ists that	nsi ner m

Joist	1	Minim	um distan	ce from in	side face	of supp	orts to co	entre of	opening (	ft - in.)
Depth	Joist Series		_		Duct Ch	ase Leng	th (in.)			
,		8	10	12	14	16	18	20	22	24
	NI-20	4'-1"	4'-5"	4'-10"	5'-4"	5'-8"	6'-1"	6'-6"	7'-1"	7'-5"
	NI-40x	5'-3"	5'-8"	6'-0"	6'-5"	6'-10"	7'-3"	7'-8"	8'-2"	8'-6"
9-1/2"	NI-60	5'-4"	5'-9"	6'-2"	6'-7"	7'-1"	7'-5"	8'-0"	8'-3"	8'-9'
	NI-70	5'-1°	5'-5"	5'-10'	6'-3"	6'-7"	7'-1"	7'-6"	8'-1"	8'-4"
	NI-80	51.31	5'-8"	6'-0"	6'-5"	6'-10"	7'-3°	7'-8"	8'-2"	8'-6"
	NI-20	5'-9'	6'-2"	6'-6"	7-12	7'-5"	7'-9"	8'-3"	8'-9"	9'-4"
	NI-40x	6'-8"	7'-2°	7'-6"	8'-1"	8'-6"	9'-1"	9'-6"	10'-1"	10'-9"
	NI-60	7'-3"	71-8*	8'-0"	B'-6"	9'-0'	9'-3"	9'-9"	10'-3"	11'-0"
11-7/8*	NI-70	7'-1"	7'-4"	7'-9'	8,-3,	8'-7'	9'-1"	9'-6"	10'-1"	10'-4"
	NI-80	7'-2"	7'-7"	8'-0"	8'-5"	8'-10"	9'-3"	9'-8"	10'-2"	10'-8"
	NI-90	7'-6"	7'-11"	8'-4"	8'-9"	9'-2"	9'-7"	10'-1"	10'-7"	10'-11"
	NJ-90x	7'-7'	8'-1"	8'-5"	8'-10"	9'-4"	9-8	10'-2*	10'-8"	11'-2"
	NI-40x	8'-1"	8'-7"	9'-0"	9'-6"	10:-1"	10'-7"	11'-2"	12'-0"	12-8*
	NI-60	8'-9"	9'-3"	9'-8"	10'-1"	10'-6"	11'-1"	11'-6"	13'-3"	13'-0"
14*	NI-70	8'-7"	9'-1"	9'-5"	9'-10"	10'-4"	10'-8"	11'-2"	11'-7"	12'-3"
'4	NI-80	9'-0"	91-3*	9'-9"	10'-1"	10'-7"	11'-1"	11'-6"	12'-1"	12'-6"
	NI-90	9'-2"	9'-8"	10'-0"	10'-6"	10'-11'	11'-5"	11'-9"	12'-4"	12'-11"
	NI-90x	9'-4"	9-9"	10'-3"	10'-7"	11'-1"	11-7*	12'-1"	12'-7"	13-2
	NI-60	10'-3"	10'-8"	1152	11'-6"	12'-1"	12-6*	13'-2*	14'-1"	14-10
	NI-70	10'-1"	10'-5"	11'-0"	11'-4"	11'-10'	12'-3"	12'-8"	13'-3"	14'-0"
16"	NI-80	10-4	10'-9"	11'-3"	11'-9"	12'-1"	12-7"	13'-1"	13' 8"	14'-4"
	NI-90	10'-9'	11'-2"	114-8"	12'-0"	12'-6"	13'-0"	13'-6"	14-2"	14'-10"
	NI-90x	1341	11'-5"	135-10	12'-4"	12'-10'	13'-2"	13'-9"	14'-4°	15'-2"

1. Above toble may be used for I-joist spacing of 24 inches on centre or less.
2. Duct chase opening location distance is measured from inside face of supports to centre of opening.
3. The above toble is based on simple-span joists only. For other opplications, contact your local distributor.
4. Distances are based on uniformly loaded floor joists that meet the span requirements for a design live load of 40 pst and dead load of 15 pst, and a live load deflection limit of I/480.
5. The above table is based on the I-joists being used of their moximum spans. The minimum distance a given above may be reduced for shorter spans; contact your local distributor.

# block Offset nails from

FILLER BLOCK REQUIREMENTS FOR DOUBLE 1-JOIST

-1/8" to 1/4" gap between top flange and filler block

- 2x plate flush with inside face of wall

past inside face of wall or beam

sides laterally suppor the top flange, bearing

### Flange Size 1. Support back of I-joist web during nailing to prevent damage to web/flange connection. 2-1/8" x 6" 2-1/8" x 8" 9-1/2" Leave a 1/8 to 1/4-inch gap between top of filler block and bottom of top I-joist flange. 1-1/2\* 3. Filler block is required between joists for full length 2-1/8" x 12" 4. Nail joists together with two rows of 3" nails of 12 inches 3" x 6" 11-7/8\* o.c. (clinched when possible) on each side of the double 1-joist. Total of four nails per foot required. If nails can be 1-1/2° 11-7/8" 3' x 7" 14" 3' x 9' 16" 3' x 11"

Multiple I-joist header with full depth filler

detail 1h Nail with twalve 3"

nails, clinch when possible.

Install hanger per

black shown. Nordic Lam or SCL headers may also be used. Verify double 1-joist

clinched, only two nails per foot are required. The maximum factored load that may be applied to one side of the double joist using this detail is 860 lbf/ft. 3-1/2" x

Verify double Ligist conneity

One 2-1/2\*face pail at

Vertical Load\* (plf) 1-1/8" Rim Board Plus 8,090

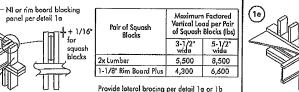
\*The uniform vertical load is limited to a rim board depth of 16 inches or less and is based on standard term load duration. It shall not be used in the design of a bending member, such as joist, header, or rafter. For concentrated vertical load transfer, see detail 1d.

One 2-1/2" wire ar spiral nail at top and bottom flange

Attach rim board to top plate using 2-1/2" wire or spiral toe-nails at 6" o.c.

To avoid splitting flange, start nails at least 1-1/2" from end of 1-joist. Nails may be driven at an angle to avoid splitting of bearing plate.

Minimum bearing length shall be 1-3/4" for the end bearings, and 3-1/2" for the intermediate bearings when applicable.



Maximum Factored Uniform

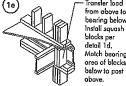
Vertical Load\* (plf)

3,300

\*The uniform vertical load is limited to a joist death of 16 inches or less and is based on standard term load duration It shall not be used in the design of a bending member, as joist, header, or rafter. For concentrated vertical load

· 2-1/2" nails at 6" o.c. to top plate (when used for lateral

shear transfer, nail to bearing plate with same nailing as required for decking)



Load bearing wall above shall align vertically 2-1/2° nails at 6° a.c.

with the bearing below. Other conditions, such as offset bearing walls, are not covered by P Blocking required over all interior supports under load-bearing walls or when floor joists are not continuous over support

–NI blocking panel per detail 1a

Bocker block (use if hanger load exceeds 360 lbs). Before installing a backer block to a double i-joist, drive three additional 3" nails through the webs and filler block where the

backer block will fit. Clinch. Install backer tight to top flange. Use twelve 3' nails, clinched when possible. Maximum factored resistance for hanger for this detail = 1,620 lbs.

or Rim Joist

NI Joists

## BACKER BLOCKS (Blocks must be long enough to permit required nailing without splitting)

rlange Width	Material Thickness Required*	Minimum Depth**
2-1/2*	1"	5-1/2"
3-1/2"	1-1/2"	7-1/4*
Minimum acada f	ine basing black material chall be S. D.	No. 2 as botto efected to be led

wood structural panels conforming to CAN/CSA-0325 or CAN/CSA-0437 Standard \*For face-mount hangers use net joist depth minus 3-1/4\* for joists with 1-1/2\* thick flanges. For 2\* thick flanges use net depth minus 4-1/4\*.

(m)

Maximum suppo

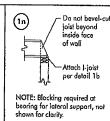
capacity = 1,620 lbs.

Double I-joist header NOTE: Unless hanger sides laterally support Backer black required Filler block (both sides for face-

For hanger capacity see hanger manufacturer's recommendations. Verify double I-joist capacity to support

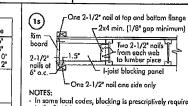
(1) Structural Composite Lumber (SCL) For nailing schedules for multiple beams, see the manufacturer's Top- or face-mount hanger installed per manufacturer's

NOTE: Unless hanger sides laterally support the top flange, bearing stiffeners shall be used.



(17) Lumber 2x4 min., extend block to face of adjacent web. Two 2-1/2" spirol nails from each web to lumber piece, alternate NI blocking panel

OPTIONAL: Minimum 1x4 inch strap applied to underside of joist at blocking line or 1/2 inch minimum gypsum ceiling attached to underside of joists.



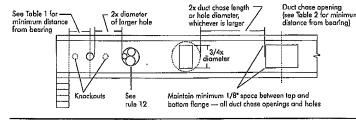
In some local codes, blocking is prescriptively required in the first joist space (or first and second joist space) next to the starter joist. Where required, see local code requirements for spacing of the blocking.

All nails are common spiral in this detail.

All nails shown in the above details are assumed to be mon wire nail noted. 3° (0.122° dia.) common spiral nails may be substituted to 2-1/2" (0.128" dia.) assumed to be Spruce-Pine-Fir No. 2 or better. Individua components not show to scale for clarity.

## FIGURE 7

## FIELD-CUT HOLE LOCATOR





Knockouts are prescored holes provided for the contractor's convenience to install electrical or small plumbing lines. They are 1-1/2 inches in diameter, and are spaced 15 inches on centre along the length of the I-joist. Where possible, it is preferable to use knockauts instead of field-cut hales

Never drill, cut or notch the flange, or over-cut the web.

Holes in webs should be cut with a sharp saw.

For rectangular holes, avoid over-cutting the corners, as this can cause unnecessary stress concentrations. Slightly rounding the corners is recommended. Starting the rectangular hole by drilling a 1-inch diameter hole in each of the four corners and then making the cuts between the holes is another good method to minimize damage to the I-joist.

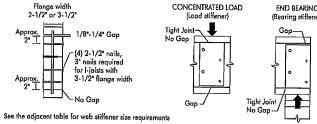
## **WEB STIFFENERS**

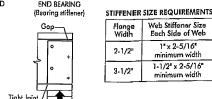
## RECOMMENDATIONS:

- A hearing stiffener is required in all engineered applications with factored reactions greater than shown in the I-joist properties table found of the I-joist Construction Guide (C101). The gap between the stiffener and the flange is at the territory.
- A bearing stiffener is required when the I-joist is supported in a hong and the sides of the hanger do not extend up to, and support, the top flange. The gap between the stiffener and flange is at the top.
- A load stiffener is required at locations where a factored concentrated load greater than 2,370 lbs is applied to the top flange between supports, or in the case of a cantilever, anywhere between the cartilever tip and the support. These values are for standard term load duration, and may be adjusted for other load durations as permitted by the code. The gap between the stiffener and the flange is at the bottom.

## FIGURE 2

## WEB STIFFENER INSTALLATION DETAILS





Flange Width	Web Stiffener Size Each Side of Web
2-1/2"	1" x 2-5/16" minimum width
3-1/2°	1-1/2" x 2-5/16" minimum width

## **SAFETY AND CONSTRUCTION PRECAUTIONS**





Never stack building material r unsheathed I-joists. One eathed, do not over-stress

WARNING: I-foists are not stable until completely installed, and will not carry any load until fully braced and sheathed.

AVOID ACCIDENTS BY FOLLOWING THESE IMPORTANT GUIDELINES:

Brace and nail each Lipist as it is installed, using hangers, blacking panels, rim board, and/or cross-bridging at joist ends.
 When Lipists are applied continuous over interior supports and a load-bearing wall is planned at that location, blacking will

t. When the building is completed, the floor sheathing will provide lateral support for the top flanges of the L-joists. Until this sheathing is applied, temporary bracing, often called struts, or temporary sheathing must be applied to prevent I-joist rollover or buckling.

or buckling.

Temporary bracing or struts must be 1x4 inch minimum, at least 8 feet long and spaced no mare than 8 feet on centre, and must be secured with a minimum of two 2-1/2\* nails fostened to the top surface of each I-joist. Nail the bracing to a lateral restraint at the end of each boy. Lop ends of adjoining bracing over at least two I-joists.

On sheathing (temporary or permanent) can be nailed to the top flange of the first 4 feet of I-joists at the end of the boy.

For cantilevered I-joists, brace top and bottom flanges, and brace ends with closure panels, rim board, or cross-bridging.

. Install and fully nail permanent sheathing to each I-joist before placing loads on the floor system. Then, stack building materials over beams or walls only.

5. Never install a damaged I-joist.

Improper storage or installation, failure to follow applicable building codes, failure to follow span ratings for Nordic I-joists, failure to failow allowable hole sizes and locations, or failure to use web stiffeners when required can result in serious occident

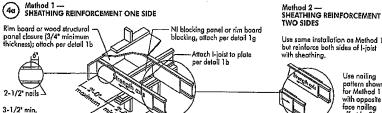


## PRODUCT WARRANTY

Chantlers Chibougaman guarantees that, in accordance with our specifications, Nordic products are free from manufacturing defects in material and workmanship.

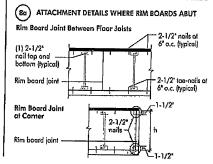
Furthermore, Chantiers Chibougaman warrants that our products, hen utilized in accordance with our handling and installation instructions. will meet or exceed our specifications for the lifetime of the structure,

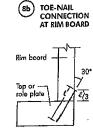
## CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET



NOTE: Canadian softwood plywood sheathing or equivalent (minimum thickness 3/4") required on sides of joist. Depth shall match the full height of the joist. Nail with 2-1/2" nails at 6" o.c., top and bottom flange. Install with face grain horizontal. Attach

## **RIM BOARD INSTALLATION DETAILS**







**COMPANY**Oct. 6, 2020 17:17

PROJECT
J1 GRD FLR.wwb

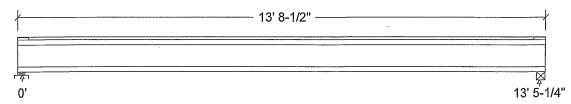
## **Design Check Calculation Sheet**

Nordic Sizer - Canada 7.2

## Loads:

Load	Туре	Distribution	Pat-	Location	[ft]	Magnitude	Unit
			tern	Start	End	Start End	
Load1	Dead	Full Area				20.00	psf
Load2	Live	Full Area				40.00	psf

## Maximum Reactions (lbs) and Support Bearing (in):



Unfactored:     Dead     Live	179 358		
Factored: Total	761		
Bearing:			├-
Capacity			
Joist	1865		
Support	3971		
Des ratio			
Joist	0.41		
Support	0.19		
Load case	#2		İ
Length	2-3/8		2
Min req'd	1-3/4		:
Stiffener	No		
KD	1.00		
KB support	1.00		
fcp sup	769		
Kzcp sup	1.09	·	

## Nordic Joist 9-1/2" NI-40x Floor joist @ 16" o.c.

Supports: 1 - Lumber Sill plate, No.1/No.2; 2 - Steel Beam, W; Total length: 13' 8-1/2"; Clear span: 13' 3-1/2"; 3/4" nailed and glued OSB sheathing This section PASSES the design code check.

## Limit States Design using CSA O86-14 and Vibration Criterion:

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 761	Vr = 1895	lbs	E = 0.40
Moment(+)	Mf = 2558	Mr = 4824	lbs-ft	Mf/Mc = 0.53
Perm. Defl'n	0.08 = < L/999	0.45 = L/360	in Io	0.18
Live Defl'n	0.17 = L/975	0.34 = L/480	in /6//	102129 60.49
Total Defl'n	0.25 = L/650	0.67 = L/240	in /	CATSOULAKOS 50.37
Bare Defl'n	0.20 = L/795	0.45 = L/360	in C e	KATSOULAKOS 50.45
Vibration	Lmax = 13'-5.3	Lv = 16'-2.1	ft 👊 🕉	0.83
Defl'n	= 0.028	= 0.050	in 🖔 🧬	0.55

NWB NO.TAW 1442& STRUGTURAL COM, ONENT ONLY

TOWNCE OF ONLY

## WoodWorks® Sizer

## for NORDIC STRUCTURES

## J1 GRD FLR.wwb

## Nordic Sizer - Canada 7.2

Page 2

Additiona	l Data:										
FACTORS:	f/E	KD	KH	KZ	KL	KT	KS.	KN	LC#		
Vr	1895	1.00	1.00		_	-	-	-	#2		
	4824		1.00	٠ ــ	1.000	-	-	-	#2		
	218.1 m		-	-	_		-	-	#2		
CRITICAL LO	OAD COMB	INATIONS	S:					•			
Shear	: LC #2	= 1.2	5D + 1.5	L							
Moment (+	) : LC #2	= 1.2	5D + 1.5	L							
Deflection	on: LC #1	= 1.0	D (perm	anent)							
ŀ			D + 1.0L								
1			D + 1.0L								
	LC #2	= 1.0	D + 1.0L	(bare	e joist)						
Bearing	: Suppo	rt 1 - 1	LC #2 = 1	1.25D +	· 1.5L						
	Suppo	rt 2 -	LC #2 =	1.25D +	· 1.5L						
Load Typ	es: D=dea	d W=wi	nd S=sn	e=H wc	arth,grou	ndwate	r E=ear	thquake			
	L=liv	e(use,o	ccupancy	) Ls=1	.ive(stora	ge, equ	ipment)	f=fire			
Load Pat	terns: s=	S/2 L=	L+Ls _=	no patt	ern load	in this	s span				
All Load	Combinat	ions (L	Cs) are	listed	in the An	alysis	output				
CALCULATI	ONS:										
Eleff =	275.77 lb	-in^2	K = 4.94	e06 lbs	3						
"Live" d	eflection	is due	to all	non-dea	d loads (	live, v	wind, sn	ow)	CQNFORMS	TO	086 2012
									AMEND	ED	2020

Design Notes:

- 1. WoodWorks analysis and design are in accordance with the 2015 National Building Code of Canada (NBC), Division B, Part 4, and the CSA 086-14 Engineering Design in Wood standard, Update No. 2 (June 2017).
- 2. Please verify that the default deflection limits are appropriate for your application.
- 3. Refer to Nordic Structures technical documentation for installation guidelines and construction details.
- 4. Nordic I-joists are listed in CCMC evaluation report 13032-R.
- 5. Joists shall be laterally supported at supports and continuously along the compression edge.
- 6. The design assumptions and specifications have been provided by the client. Any damages resulting from faulty or incorrect information, specifications, and/or designs furnished, and the correctness or accuracy of this information is their responsibility. This analysis does not constitute a record of the structural integrity of the building nor suitability of the design assumptions made. Nordic Structures is responsible only for the structural adequacy of this component based on the design criteria and loadings shown.

POVINCE OF ON

996 HO. TAW 1 442620 STRUCTURAL COMPONENT ONLY



COMPANY Oct. 6, 2020 17:19 **PROJECT** J1 2ND FLR.wwb

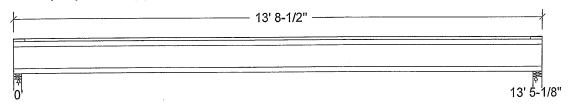
## **Design Check Calculation Sheet**

Nordic Sizer - Canada 7.2

## Loads:

Load	Type	Distribution	Pat-	Location	[ft]	Magnitud	е	Unit
2000			tern	Start	End	Start	End	
Load1	Dead	Full Area				20.00		psf
Load2	Live	Full Area				40.00		psf

## Maximum Reactions (lbs) and Support Bearing (in):



i I		·	ł I
Unfactored: Dead Live	179 358		179 358
Factored: Total	761		761
Bearing:			
Capacity			1070
Joist	1865		1872
Support	3981		4756
Des ratio			
Joist	0.41		0.41
Support	0.19		0.16
Load case	#2		#2
Length	2-3/8		2-3/4
Min req'd	1-3/4		1-3/4
Stiffener	No		No
KD	1.00		1.00
KB support	_		-
fcp sup	769		769
Kzcp sup	-		-

Bearing for wall supports is perpendicular-to-grain bearing on top plate. No stud design included.

## Nordic Joist 9-1/2" NI-40x Floor joist @ 16" o.c.

Supports: All - Lumber Wall, No.1/No.2

Total length: 13' 8-1/2"; Clear span: 13' 3-3/8"; 5/8" nailed and glued OSB sheathing with 1/2" gypsum ceiling This section PASSES the design code check.

## Limit States Design using CSA O86-14 and Vibration Criterion:

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 761	Vr = 1895	lbs	Vf/Vr = 0.40
Moment(+)	Mf = 2554	Mr = 4824	lbs-ft	Mf/Mr = 0.53
Perm. Defl'n	0.08 = < L/999	0.45 = L/360	in 🧳	50 to 30 0.19
Live Defl'n	0.17 = L/953	0.34 = L/480	in 🍆	0.50
Total Defl'n	0.25 = L/635	0.67 = L/240	in	Jano 60.38
Bare Defl'n	0.20 = L/797	0.45 = L/360	in /2 (	0.45
Vibration	Lmax = 13'-5.1	Lv = 15'-9.3	ft 🚜	1 0400 01795
Defl'n	= 0.030	= 0.050	in 🕽 🤄	KATSOULANDS 0.60

1144 NO. TAR 1 442 9-20

COMPONENT ONLY

POVINCE OF ONLY

## WoodWorks® Sizer

## for NORDIC STRUCTURES

## J1 2ND FLR.wwb

## Nordic Sizer - Canada 7.2

Page 2

						· · ·						
Additional	Data:											
FACTORS:	f/E	KD	KH	KZ	KL	KT	KS	KN	LC#			
Vr	1895	1.00	1.00		-	-	-	-	#2			
Mr+			1.00		1.000	-	-	-	#2			
	218.1 m		_	-	-		-	_	#2			
CRITICAL LO	DAD COMB	INATIONS	<b>3</b> :					o				
Shear			5D + 1.51									
Moment(+)												
Deflection												
			+ 1.0L									
			+ 1.0L									
			+ 1.0L									
Bearing			LC #2 = 1									
			LC #2 = 3				_					
Load Type												
İ					ive(stora			f=fire				
Load Patt												
All Load		ions (L	cs) are l	listed .	in the An	alysis	output					
CALCULATION												
Eleff = 2												
"Live" de	eflection	is due	to all r	non-dead	d loads (	live, w	vind, sn	ow)	Canfarms	TO	OBC	2012
Design No	ites:								AWEND	ED	202	0

- 1. WoodWorks analysis and design are in accordance with the 2015 National Building Code of Canada (NBC), Division B, Part 4, and the CSA 086-14 Engineering Design in Wood standard, Update No. 2 (June 2017).
- 2. Please verify that the default deflection limits are appropriate for your application.
- 3. Refer to Nordic Structures technical documentation for installation guidelines and construction details.
- 4. Nordic I-joists are listed in CCMC evaluation report 13032-R.
- 5. Joists shall be laterally supported at supports and continuously along the compression edge.
- 6. The design assumptions and specifications have been provided by the client. Any damages resulting from faulty or incorrect information, specifications, and/or designs furnished, and the correctness or accuracy of this information is their responsibility. This analysis does not constitute a record of the structural integrity of the building nor suitability of the design assumptions made. Nordic Structures is responsible only for the structural adequacy of this component based on the design criteria and loadings shown.

POLYNCE OF ONLY 000 NO. TAM 14429-20 STRUCTURAL COMPONENT ONLY





**PASSED** 

## 1ST FLR FRAMING\Flush Beams\B14(i4434) (Flush Beam)

**BC CALC® Member Report** 

Dry | 1 span | No cant.

June 5, 2021 08:18:45

**Build 7773** 

Job name:

File name:

38-7 SUNKEN MUDROOM OPTION .mmdl

Address:

Description: 1ST FLR FRAMING\Flush Beams\B14(i4434)

Customer:

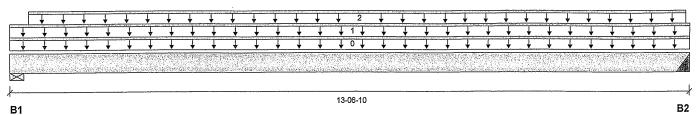
City, Province, Postal Code: RICHMOND HILL

Specifier:

Code reports:

Designer: LBV

CCMC 12472-R Company:



Total Horizontal Product Length = 13-06-10

Reaction Sun	nmary (Down / O	piiit) (ibə)			
Bearing	Live	Dead	Snow	Wind	•
B1, 2-3/8"	116 / 0	534 / 0			
B2, 4"	118 / 0	563 / 0			

Lo	ad Summary						Live	Dead	Snow	Wind	Tributary
	Description	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	13-06-10	Тор		10			00-00-00
1	FC1 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-00-00	13-06-10	Тор	17	9			n\a
2	4(i3154)	Unf. Lin. (lb/ft)	L	00-04-06	13-05-10	Тор		65			n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	2511 ft-lbs	15093 ft-lbs	16.6%	0	06-08-08
End Shear	722 lbs	7521 lbs	9.6%	0	00-11-14
Total Load Deflection	L/1170 (0.135")	n\a	20.5%	4	06-08-08
Live Load Deflection	L/999 (0.023")	n\a	n\a	5	06-08-08
Max Defl.	0.135"	n\a	n\a	4	06-08-08
Span / Depth	16.6				

Bearin	g Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	2-3/8" x 3-1/2"	747 lbs	22.5%	11.3%	Spruce-Pine-Fir
B2	Hanger	4" x 3-1/2"	788 lbs	n\a	7.1%	HGUS410

## Cautions

Header for the hanger HGUS410 is a Double 1-3/4" x 9-1/2" LVL Beam.

Hanger model HGUS410 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

Notes

J. . . . . .

Design meets Code minimum (L/240) Total load deflection criteria.

Design meets Code minimum (L/360) Live load deflection criteria.

CONFORMS TO OBC 2012

Hanger Manufacturer: Unassigned

AMENDED 2020

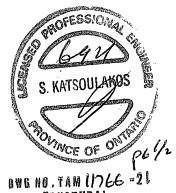
Resistance Factor phi has been applied to all presented results per CSA O86.

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA 086.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

Calculations assume unbraced length of Top: 00-00-00, Bottom: 13-04-04.



STRUCTURAL COMPONENT ONLY





City, Province, Postal Code: RICHMOND HILL

# Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1ST FLR FRAMING\Flush Beams\B14(i4434) (Flush Beam)

PASSED

**BC CALC® Member Report** 

Build 7773

Job name: Address:

Customer: Code reports:

CCMC 12472-R

Dry | 1 span | No cant.

June 5, 2021 08:18:45

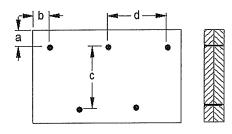
File name: 38-7 SUNKEN MUDROOM OPTION .mmdl
Description: 1ST FLR FRAMING\Flush Beams\B14(i4434)

Specifier:

Designer: LBV

Company:

## **Connection Diagram: Full Length of Member**

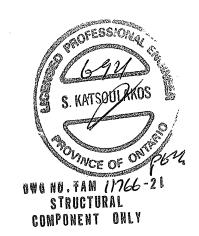


a minimum = 2" b minimum = 3" c = 5-1/2" d = 🐲 🤣 "

Connectors are: . . - :: . .

Carried Co.

3½" ARDOX SPIRAL



## Disclosure

Use of the Boise Cascade Software is subject to the terms of the End User License Agreement (EULA). Completeness and accuracy of input must be reviewed and verified by a qualified engineer or other appropriate expert to assure its adequacy, prior to anyone relying on such output as evidence of suitability for a particular application. The output here is based on building code-accepted design properties and analysis methods. Installation of Boise Cascade engineered wood products must be in accordance with current Installation Guide and applicable building codes. To obtain Installation Guide or ask questions, please call (800)232-0788 before installation.

BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,





## Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP

PASSED

1ST FLR FRAMING\Flush Beams\B15S(i4454) (Flush Beam)

Dry | 1 span | No cant.

June 5, 2021 08:18:44

**Build 7773** 

Job name:

Customer:

Code reports:

Address: City, Province, Postal Code: RICHMOND HILL

CCMC 12472-R

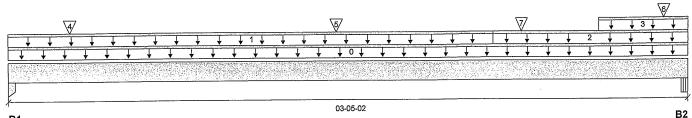
38-7 SUNKEN MUDROOM OPTION .mmdl

File name: Description: 1ST FLR FRAMING\Flush Beams\B15S(i4454)

Specifier:

LBV Designer:

Company:



В1

Total Horizontal Product Length = 03-05-02

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 1-3/4"	944 / 0	727 / 0		
B2 4"	3011 / 0	2132 / 0		

Load	d Summary						Live	Dead	Snow	Wind	Tributary
	Description	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	03-05-02	Тор		10			00-00-00
	1(i418)	Unf. Lin. (lb/ft)	L	00-00-00	02-05-02	Тор		81			n\a
	2(i417)	Unf. Lin. (lb/ft)	L	02-05-02	03-05-02	Top	299	231			n\a
	2(i417)	Unf. Lin. (lb/ft)	L	02-11-10	03-05-02	Top	203	102			n\a
	J1(i4392)	Conc. Pt. (lbs)	L	00-03-10	00-03-10	Top	242	121			n\a
	J1(i4400)	Conc. Pt. (lbs)	L	01-07-10	01-07-10	Top	370	185			n\a
	J1(i4448)	Conc. Pt. (lbs)	L	03-03-10	03-03-10	Тор	254	127			n\a
7	-	Conc. Pt. (lbs)	L	02-06-14	02-06-14	Тор	2687	1914			n\a

		Factored	Demand/	_	
Controls Summary	Factored Demand	Resistance	Resistance	Case	Location
Pos. Moment	3457 ft-lbs	23219 ft-lbs	14.9%	1	02-06-02
End Shear	4018 lbs	11571 lbs	34.7%	1	02-03-10
Total Load Deflection	L/999 (0.007")	n\a	n\a	4	01-09-02
Live Load Deflection	L/999 (0.004")	n\a	n\a	5	01-09-02
Max Defl.	0.007"	n\a	n\a	4	01-09-02
Span / Depth	3.9				

Bearing	ı Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Column	1-3/4" x 3-1/2"	2325 lbs	46.7%	31.1%	Unspecified
B2	Beam	4" x 3-1/2"	7180 lbs	96.0%	42.0%	Unspecified

Concentrated side load(s) 8 are closer than 18" from end of member. Please consult a technical representative or Professional of Record.







## Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP

PASSED

1ST FLR FRAMING\Flush Beams\B15S(i4454) (Flush Beam)

Dry | 1 span | No cant.

June 5, 2021 08:18:44

**Build 7773** 

Job name:

Customer:

Code reports:

Address:

City, Province, Postal Code: RICHMOND HILL

CCMC 12472-R

File name:

38-7 SUNKEN MUDROOM OPTION .mmdl

Description: 1ST FLR FRAMING\Flush Beams\B15S(i4454)

Specifier:

Designer: LBV

Company:

**Notes** 

Design meets Code minimum (L/240) Total load deflection criteria.

CONFORMS TO OBC 2012

Design meets Code minimum (L/360) Live load deflection criteria.

AMENDED 2020

Resistance Factor phi has been applied to all presented results per CSA O86.

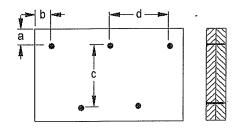
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA 086.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

Calculations assume unbraced length of Top: 00-00-00, Bottom: 01-01-08.

## **Connection Diagram: Full Length of Member**



a minimum = 2" b minimum = 3" c = 5-1/2" d = 88 8"

Calculated Side Load = 393.1 lb/ft Connectors are: 16d ... A ... Nails

312" ARDOX SPIRAL



0W6 NO. TAM [1767-2] STRUCTURAL COMPONENT ONLY

## Disclosure

Use of the Boise Cascade Software is subject to the terms of the End User License Agreement (EULA). Completeness and accuracy of input must be reviewed and verified by a qualified engineer or other appropriate expert to assure its adequacy, prior to anyone relying on such output as evidence of suitability for a particular application. The output here is based on building code-accepted design properties and analysis methods. Installation of Boise Cascade engineered wood products must be in accordance with current Installation Guide and applicable building codes. To obtain Installation Guide or ask questions, please call (800)232-0788 before installation.

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PASSED

October 7, 2020 08:28:31

## 1ST FLR FRAMING\Flush Beams\B1(i2840) (Flush Beam)

**BC CALC® Member Report** 

**Build 7493** 

Job name: Address:

City, Province, Postal Code: RICHMOND HILL

Customer: Code reports: CCMC 12472-R

Dry | 1 span | No cant.

38-7.mmdl

Wind

Description: 1ST FLR FRAMING\Flush Beams\B1(i2840)

Specifier:

File name:

Designer: LBV

Company:

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1																														
														04-0	5-02															
1																														

## Total Horizontal Product Length = 04-05-02

Snow

## Reaction Summary (Down / Uplift) (Ibs)

Bearing	Live	Dead
B1, 5-1/2"	2486 / 0	1375 / 0
B2, 4"	949 / 0	499 / 0

Loa	ad Summary						Live	Dead	Snow	Wind	Tributary
Tag	Description	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	04-05-02	Тор		10			00-00-00
1	-	Conc. Pt. (lbs)	L	00-10-11	00-10-11	Top	446	246			n\a
2	-	Conc. Pt. (lbs)	L	01-10-08	01-10-08	Тор	463	231			n\a
3	-	Conc. Pt. (lbs)	L	02-10-08	02-10-08	Top	466	233			n\a
4	-	Conc. Pt. (lbs)	L	03-10-08	03-10-08	Тор	424	213			n\a
5	E15(i385)	Conc. Pt. (lbs)	L	00-02-12	00-02-12	Тор	1627	904			n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	1795 ft-lbs	23220 ft-lbs	7.7%	1	01-10-08
End Shear	1417 lbs	11571 lbs	12.2%	1	01-03-00
Total Load Deflection	L/999 (0.006")	n\a	n\a	4	02-03-00
Live Load Deflection	L/999 (0.004")	n\a	n\a	5	02-03-00
Max Defl.	0.006"	n\a	n\a	4	02-03-00
Span / Depth	4.8				

Bearing	g Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	5-1/2" x 3-1/2"	5448 lbs	46.0%	23.2%	Spruce-Pine-Fir
B2	Hanger	4" x 3-1/2"	2046 lbs	n\a	12.0%	HGUS410

Header for the hanger HGUS410 is a Single 1-3/4" x 9-1/2" LVL Beam.

Hanger model HGUS410 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

## Notes

Design meets Code minimum (L/240) Total load deflection criteria.

Design meets Code minimum (L/360) Live load deflection criteria.

Calculations assume member is fully braced.

Hanger Manufacturer: Unassigned

Resistance Factor phi has been applied to all presented results per CSA O86.

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA 086.

Design based on Dry Service Condition. Importance Factor: Normal Part code: Part 9 CONFORMS TO OBC 2012

AMENDED 2020







1ST FLR FRAMING\Flush Beams\B1(i2840) (Flush Beam)

PASSED

**BC CALC® Member Report** 

**Build 7493** 

Job name: Address:

Customer:

Code reports:

Dry | 1 span | No cant.

October 7, 2020 08:28:31

File name: 38-7.mmdl

**LBV** 

Description: Specifier:

1ST FLR FRAMING\Flush Beams\B1(i2840)

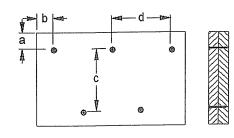
City, Province, Postal Code: RICHMOND HILL

Designer:

Company:

## **Connection Diagram: Full Length of Member**

CCMC 12472-R



a minimum = 2"

c = 5-1/2" d = @ 8 61

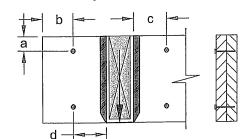
b minimum = 3"

Calculated Side Load = 286.1 lb/ft Connectors are: 16d M Nails 3-1/2" ARDOX SPIRAL

**Connection Diagrams: Concentrated Side Loads** 

Connection Tag: A

Applies to load tag(s): 4+5+6+7



a minimum = 2"

b minimum = 4"

c minimum = 4"

d maximum = 12"

Connectors are: 16d Nails

3-1/2" ARDOX SPIRAL



676 NO. TAW 14430-26 STRUCTURAL COMPONENT ONLY

## Disclosure

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BC CALC®, BC FRAMER® , AJS™ ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,





Dry | 2 spans | L cant.

1ST FLR FRAMING\Flush Beams\B2(i2978) (Flush Beam)

PASSED

October 7, 2020 08:28:31

**BC CALC® Member Report** 

**Build 7493** 

Job name:

Customer:

Code reports:

Address: City, Province, Postal Code: RICHMOND HILL

CCMC 12472-R

Description:

Specifier:

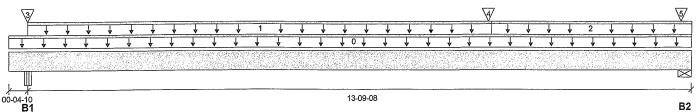
1ST FLR FRAMING\Flush Beams\B2(i2978)

File name:

Designer: LBV

38-7.mmdl

Company:



Total Horizontal Product Length = 14-02-02

## Reaction Summary (Down / Uplift) (lbs)

I COULIDII GOII	minor y pour or	· · · · · · · · · · · · · · · · · · ·		
Bearing	Live	Dead	Snow	Wind
B1, 5-1/4"	1066 / 0	605 / 0		
B2, 3-1/2"	548 / 0	326 / 0		

Lo	ad Summary						Live	Dead	Snow	Wind
Tag	_	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	14-02-02	Тор		5		
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-04-10	09-11-06	Top	20	10		
2	FC1 Floor Material	Unf. Lin. (lb/ft)	L	09-11-06	14-02-02	Тор	9	4		
3	-	Conc. Pt. (lbs)	L	00-04-10	00-04-10	Top	742	406		والماري والمتعارض والمتعارض
4	B6(i3135)	Conc. Pt. (lbs)	L	09-10-08	09-10-08	Тор	640	329		CAFES
5	E10(i382)	Conc. Pt. (lbs)	L	13-11-06	13-11-06	Тор		12		QOFES QOFES

		Factored	Demand/		
Controls Summary	Factored Demand	Resistance	Resistance	Case	Location
Pos. Moment	4715 ft-lbs	11610 ft-lbs	40.6%	3	09-10-08
Neg. Moment	-2 ft-lbs	-11610 ft-lbs	n\a	1	00-04-10
End Shear	1187 lbs	5785 lbs	20.5%	1	13-01-02
Cont. Shear	678 lbs	5785 lbs	11.7%	1	01-04-12
Total Load Deflection	L/435 (0.374")	n\a	55.2%	10	07-07-07
Live Load Deflection	L/684 (0.238")	n\a	52.7%	13	07-07-07
Total Neg. Defl.	2xL/1998 (-0.03")	n\a	n\a	10	00-00-00
Max Defl.	0.374"	n\a	n\a	10	07-07-07
Span / Depth	17.1				

Bearing	g Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Beam	5-1/4" x 1-3/4"	2356 lbs	60.0%	21.0%	Unspecified
B2	Wall/Plate	3-1/2" x 1-3/4"	1229 lbs	32.6%	16.4%	Spruce-Pine-Fir

Design meets Code minimum (L/240) Total load deflection criteria.

Design meets Code minimum (L/360) Live load deflection criteria.

CONFORMS TO DBG 2012 AMENDED 2020

Calculations assume member is fully braced.

Resistance Factor phi has been applied to all presented results per CSA O86.

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA 086.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

Cantilevers require sheathed bottom flanges, blocking at cantilever support and closure at ends.



Tributary

00-00-00 n\a

88 80 . TAM 14431 -20 STRUCTURAL COMPONENT ONLY

## Disclosure

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PASSED

1ST FLR FRAMING\Flush Beams\B3(i2920) (Flush Beam)

**BC CALC® Member Report** 

**Build 7493** 

Job name:

Dry | 1 span | No cant.

October 7, 2020 08:28:31

Address:

File name: Description:

1ST FLR FRAMING\Flush Beams\B3(i2920)

City, Province, Postal Code: RICHMOND HILL

Specifier: Designer:

LBV

38-7.mmdl

Wind

AMENDED 2020

Customer: Code reports:

CCMC 12472-R

Company:

Total Horizontal Product Length = 09-07-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow
B1, 3"	186 / 0	116 / 0	
B2. 3-1/2"	862 / 0	463 / 0	

Load Summary		d Summary						Live	Dead	Snow	Wind	Tributary
		Description	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
-	0	Self-Weight	Unf. Lin. (lb/ft)	Ĺ	00-00-00	09-07-04	Top		5			00-00-00
	1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	09-05-00	Top	19	10			n\a
	2	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	04-00-12	Top	18	9			n\a
	3	FC1 Floor Material	Unf. Lin. (lb/ft)	L	04-09-04	09-05-00	Top	27	14		روي ويوني الماري	<sub>∞</sub> n\a
	1	B6(i3135)	Conc. Pt. (lbs)	L	09-04-02	09-04-02	Тор	659	338	10 10 10 10 10 10 10 10 10 10 10 10 10 1	fessio,	n\a
	7						•			تفرق فالمجارعة		200

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	981 ft-lbs	11610 ft-lbs	8.4%	1	05-00-01
End Shear	364 lbs	5785 lbs	6.3%	1	08-06-04
Total Load Deflection	L/999 (0.042")	n\a	n\a	4	04-09-04
Live Load Deflection	L/999 (0.026")	n\a	n\a	5	04-09-04
Max Defl.	0.042"	n\a	n\a	4	04-09-04
Span / Depth	11.6				

Bearing	g Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Hanger	3" x 1-3/4"	424 lbs	n\a	6.6%	HUS1.81/10
B2	Column	3-1/2" x 1-3/4"	1871 lbs	47.0%	25.0%	Unspecified

## Cautions

Header for the hanger HUS1.81/10 is a Double 1-3/4" x 9-1/2" LVL Beam.

Hanger model HUS1.81/10 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

## Notes

Design meets Code minimum (L/240) Total load deflection criteria.

Design meets Code minimum (L/360) Live load deflection criteria.

Calculations assume member is fully braced.

Hanger Manufacturer: Unassigned

Resistance Factor phi has been applied to all presented results per CSA O86.

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA 086.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

COMPONENT ONLY Disclosure

Use of the Boise Cascade Software is subject to the terms of the End User License Agreement (EULA). Completeness and accuracy of input must be reviewed and verified by a qualified engineer or other appropriate expert to assure its adequacy, prior to anyone relying on such output as evidence of suitability for a particular application. The output here is based on building code-accepted design properties and analysis methods. Installation of Boise Cascade CONFORMS TO OBG 2012 engineered wood products must be in Guide and applicable building codes. To obtain Installation Guide or ask questions, please call (800)232-0788 before installation.

> BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,







## Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP

PASSED

1ST FLR FRAMING\Flush Beams\B4(i2842) (Flush Beam)

Dry | 1 span | No cant.

October 7, 2020 08:28:31

**Build 7493** 

Job name:

Customer:

Code reports:

Address: City, Province, Postal Code: RICHMOND HILL

CCMC 12472-R

File name: 38-7.mmdl

1ST FLR FRAMING\Flush Beams\B4(i2842) Description:

Specifier:

Designer: **LBV** 

Wind

Company:

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## Total Horizontal Product Length = 08-10-08

## Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow
B1, 5-1/2"	644 / 0	368 / 0	
B2, 3-1/2"	647 / 0	383 / 0	

I٥	ad Summary						Live	Dead	Snow	Wind	Tributary
Tag		Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	08-10-08	Тор		5			00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	04-10-00	Top	27	13			n\a
2	FC1 Floor Material	Unf. Lin. (lb/ft)	L	04-10-00	08-10-08	Top	8	4			n\a
3	B5(i3132)	Conc. Pt. (lbs)	L	04-09-02	04-09-02	Top	1023	538			n\a
4	E14(i391)	Conc. Pt. (lbs)	L	00-02-12	00-02-12	Top		12			n\a
5	STAIR	Conc. Pt. (lbs)	L	04-00-00	04-00-00	Top	102	51	شاخان المان ال المان المان ال	FESSIO	n\a
6	E12(i384)	Conc. Pt. (lbs)	L	08-07-12	08-07-12	Top		26	1.00	, Charles and the Control of the Con	nla
J			F4d	Dam	- m al l					Mi	Z Na

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	5286 ft-lbs	11610 ft-lbs	45.5%	1	04-09-02
End Shear	1386 lbs	5785 lbs	24.0%	1	07-09-08
Total Load Deflection	L/654 (0.151")	n\a	36.7%	4	04-06-13
Live Load Deflection	L/999 (0.098")	n\a	n\a	5	04-06-13
Max Defl.	.0.151"	n\a	n\a	4	04-06-13
Span / Depth	10.4				

Bearin	ng Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	5-1/2" x 1-3/4"	1426 lbs	24.1%	12.1%	Spruce-Pine-Fir
B2	Wall/Plate	3-1/2" x 1-3/4"	1449 lbs	38.4%	19.4%	Spruce-Pine-Fir

## Notes

Design meets Code minimum (L/240) Total load deflection criteria.

Design meets Code minimum (L/360) Live load deflection criteria.

Calculations assume member is fully braced.

Resistance Factor phi has been applied to all presented results per CSA O86. AMENDED 2020 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA 086. Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

subject to the terms of the End User License Agreement (EULA). Completeness and accuracy of input must be reviewed and verified by a qualified engineer or other appropriate expert to assure its adequacy, prior to anyone relying on such output as evidence of suitability for a particular application. The output here is based on building code-accepted design properties and analysis methods. Installation of Boise Cascade engineered wood products must be in accordance with current Installation Guide and applicable building codes. To obtain Installation Guide or ask questions, please call (800)232-0788

BC CALC®, BC FRAMER®, AJS™. ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,

before installation.



POWNINGE OF CHIPP





## Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP

PASSED

1ST FLR FRAMING\Flush Beams\B5(i3132) (Flush Beam)

Dry | 1 span | No cant.

October 7, 2020 08:28:31

**Build 7493** 

Job name:

Customer:

Code reports:

Address:

City, Province, Postal Code: RICHMOND HILL

CCMC 12472-R

File name:

38-7.mmdl

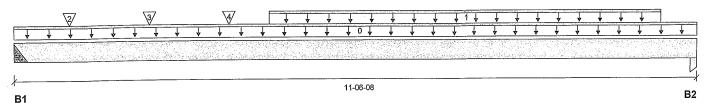
Wind

1ST FLR FRAMING\Flush Beams\B5(i3132) Description:

Specifier:

Designer: LBV

Company:



Total Horizontal Product Length = 11-06-08

Snow

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead
B1, 3"	1041 / 0	548 / 0
B2, 1-3/4"	584 / 0	319 / 0

l o:	ad Summary						Live	Dead	Snow	Wind	Tributary
		Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	11-06-08	Тор		5			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	04-03-00	10-11-00	Тор	91	46			n\a
2	J3(i2822)	Conc. Pt. (lbs)	L	00-11-00	00-11-00	Top	340	170			n\a
3	J3(i3159)	Conc, Pt. (lbs)	L	02-03-00	02-03-00	Top	391	195			n\a
4	J3(i2834)	Conc. Pt. (lbs)	L	03-07-00	03-07-00	Тор	277	138	148 187	on sales	n\a

		Factored	Demand/		
Controls Summary	<b>Factored Demand</b>	Resistance	Resistance	Case	Location
Pos. Moment	4665 ft-lbs	11610 ft-lbs	40.2%	1	04-11-00
End Shear	2126 lbs	5785 lbs	36.8%	1	01-00-08
Total Load Deflection	L/448 (0.302")	n\a	53.5%	4	05-07-00
Live Load Deflection	L/688 (0.197")	n\a	52.3%	5	05-07-00
Max Defl.	0.302"	n\a	n\a	4	05-07-00
Snan / Denth	14.2				

Bearing	g Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Hanger	3" x 1-3/4"	2247 lbs	n\a	35.1%	HUS1.81/10
B2	Column	1-3/4" x 1-3/4"	1275 lbs	64.1%	34.1%	Unspecified

## Cautions

Header for the hanger HUS1.81/10 is a Single 1-3/4" x 9-1/2" LVL Beam.

Hanger model HUS1.81/10 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

## **Notes**

Design meets Code minimum (L/240) Total load deflection criteria.

Design meets Code minimum (L/360) Live load deflection criteria.

Calculations assume member is fully braced.

Hanger Manufacturer: Unassigned

Resistance Factor phi has been applied to all presented results per CSA O86.

AMENDED 2020 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA 086.

Design based on Dry Service Condition. Importance Factor: Normal Part code: Part 9 COMPORMS TO OBE 2012



## 848 NO. TAM 14434-28 STRUCTURAL COMPONENT ONLY

## Disclosure

Use of the Boise Cascade Software is subject to the terms of the End User License Agreement (EULA). Completeness and accuracy of input must be reviewed and verified by a qualified engineer or other appropriate expert to assure its adequacy, prior to anyone relying on such output as evidence of suitability for a particular application. The output here is based on building code-accepted design properties and analysis methods. Installation of Boise Cascade engineered wood products must be in accordance with current Installation Guide and applicable building codes. To obtain Installation Guide or ask questions, please call (800)232-0788 before installation.

BC CALC®, BC FRAMER®, AJS™ ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,





## Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP

## 1ST FLR FRAMING\Flush Beams\B6(i3135) (Flush Beam)

Dry | 1 span | No cant.

October 7, 2020 08:28:31

PASSED

**Build 7493** 

Job name:

Customer:

Code reports:

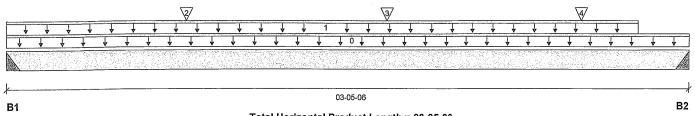
Address: City, Province, Postal Code: RICHMOND HILL File name: 38-7.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B6(i3135)

Specifier:

Designer: LBV

CCMC 12472-R Company:



## Total Horizontal Product Length = 03-05-06

## ction Summary (Down / Unlift) (lbs)

Reaction St	IIIIIIaiy (Dowii i G	piiit, (iba)			
Bearing	Live	Dead	Snow	Wind	
B1, 3"	661 / 0	339 / 0			
B2, 3"	637 / 0	328 / 0			

Lo	ad Summary						Live	Dead	Snow	Wind	Tributary
Tag	•	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	03-05-06	Тор		5	-		00-00-00
1	STAIR	Unf. Lin. (lb/ft)	L	00-00-00	03-02-04	Тор	240	120			n\a
2	J2(i2966)	Conc. Pt. (lbs)	L	00-10-12	00-10-12	Top	188	94			n\a
3	J2(i2885)	Conc. Pt. (lbs)	L	01-10-12	01-10-12	Top	191	96	منتفقة والمراد	or E. C. C. C.	n\a
4	J2(i2912)	Conc. Pt. (lbs)	L	02-10-12	02-10-12	Тор	155	78		310000	n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	1102 ft-lbs	11610 ft-lbs	9.5%	1	01-10-12
End Shear	1155 lbs	5785 lbs	20.0%	1	02-04-14
Total Load Deflection	L/999 (0.005")	n\a	n\a	4	01-08-13
Live Load Deflection	L/999 (0.003")	n\a	n\a	5	01-08-13
Max Defl.	0.005"	n\a	n\a	4	01-08-13
Span / Depth	3.9				

Bear	ing Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Hanger	3" x 1-3/4"	1416 lbs	n\a	22.1%	HUS1.81/10
B2	Hanger	3" x 1-3/4"	1365 lbs	n\a	21.3%	HUS1.81/10

Header for the hanger HUS1.81/10 is a Single 1-3/4" x 9-1/2" LVL Beam.

Hanger model HUS1.81/10 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

## Notes

Design meets Code minimum (L/240) Total load deflection criteria.

Design meets Code minimum (L/360) Live load deflection criteria.

Calculations assume member is fully braced.

Hanger Manufacturer: Unassigned

AMENDED 2020 Resistance Factor phi has been applied to all presented results per CSA O86.

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA 086.

Design based on Dry Service Condition. Importance Factor: Normal Part code: Part 9 CONFORMS TO OBC 2012



## dwg NO. TAN 14435-20 STRUCTURAL COMPONENT ONLY

## Disclosure

Use of the Boise Cascade Software is subject to the terms of the End User License Agreement (EULA). Completeness and accuracy of input must be reviewed and verified by a qualified engineer or other appropriate expert to assure its adequacy, prior to anyone relying on such output as evidence of suitability for a particular application. The output here is based on building code-accepted design properties and analysis methods. Installation of Boise Cascade engineered wood products must be in accordance with current Installation Guide and applicable building codes. To obtain Installation Guide or ask questions, please call (800)232-0788 before installation.

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PASSED

## 2ND FLR FRAMING\Flush Beams\B10(i3898) (Flush Beam)

Dry | 1 span | No cant. **BC CALC® Member Report** 

October 20, 2020 10:01:22

**Build 7493** 

Job name: Address:

File name: 38-7.mmdl

LBV

2ND FLR FRAMING\Flush Beams\B10(i3898) Description:

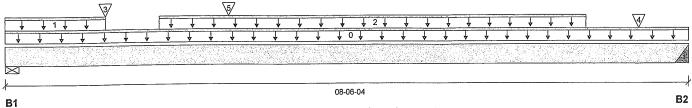
City, Province, Postal Code: RICHMOND HILL

Specifier:

Customer: Code reports:

CCMC 12472-R

Designer: Company:



Total Horizontal Product Length = 08-06-04

Reaction Summary (Down / Obint) (ibs)										
Bearing	Live	Dead	Snow	Wind						
B1, 4-3/4"	1422 / 0	768 / 0								
B2, 4"	1069 / 0	577 / 0								

Lo	ad Summary						Live	Dead	Snow	Wind	Tributary
	Description	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	08-06-04	Тор		10			00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	01-02-12	Тор	44	22			n\a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	01-10-12	07-02-12	Top	226	111			n\a
3	51110001100 2000	Conc. Pt. (lbs)	L	01-02-12	01-02-12	Тор	582	293			n\a
1	J2(i3935)	Conc. Pt. (lbs)	L	07-10-12	07-10-12	Тор	239	117			n\a
5	uz(10000)	Conc. Pt. (lbs)	L	02-09-00	02-09-00	Тор	400	228			n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	5391 ft-lbs	23220 ft-lbs	23.2%	1	03-10-12
End Shear	2968 lbs	11571 lbs	25.7%	1	01-02-04
Total Load Deflection	L/999 (0.085")	n\a	n\a	4	04-02-12
Live Load Deflection	L/999 (0.055")	n\a	n\a	5	04-02-12
Max Defl.	0.085"	n\a	n\a	4	04-02-12
Span / Depth	10.0				

Bearing	Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Resistance Member	Material
B1		4-3/4" x 3-1/2"	3094 lbs	30.3%	15.3%	Spruce-Pine-Fir
B2	Hanger	4" x 3-1/2"	2324 lbs	n\a	13.6%	HGUS410

## Cautions

Header for the hanger HGUS410 is a Double 1-3/4" x 9-1/2" LVL Beam.

Hanger model HGUS410 and seat length were input by the user. Hanger has not been analyzed for OKA adequate capacity.

## Notes

Design meets Code minimum (L/240) Total load deflection criteria.

Design meets Code minimum (L/360) Live load deflection criteria.

Calculations assume unbraced length of Top: 00-00-00, Bottom: 00-00-00.

Hanger Manufacturer: Unassigned

Resistance Factor phi has been applied to all presented results per CSA O86.

Resistance Factor pni nas peen applied to all presented results per CSA O86. AMENDED 2020 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition. Importance Factor: Normal Part code: Part 9



979 90. TAM14436-20 STRUCTURAL COMPONENT ONLY

CONFORMS TO OBC 2012





PASSED

2ND FLR FRAMING\Flush Beams\B10(i3898) (Flush Beam)

Dry | 1 span | No cant.

October 20, 2020 10:01:22

**Build 7493** 

Job name:

Customer:

Address:

**BC CALC® Member Report** 

City, Province, Postal Code: RICHMOND HILL

File name:

2ND FLR FRAMING\Flush Beams\B10(i3898) Description:

38-7.mmdl

Specifier:

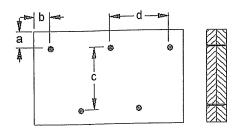
Designer: **LBV** 

Company:

Code reports:

CCMC 12472-R

## Connection Diagram: Full Length of Member



a minimum = 2" b minimum = 3" d = @B c = 5-1/2"

Calculated Side Load = 645.0 lb/ft Connectors are: 16d Nails 3-1/2" ARDOX SPIRAL



DWG NO. TAW/4436-26 STRUCTURAL COMPONENT ONLY

## Disclosure

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BC CALC®, BC FRAMER®, AJS™ ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,





PASSED

October 7, 2020 08:28:31

2ND FLR FRAMING\Flush Beams\B11(i2902) (Flush Beam)

**BC CALC® Member Report** 

**Build 7493** Job name:

Address:

Dry | 1 span | No cant.

File name: 38-7.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B11(i2902)

City, Province, Postal Code: RICHMOND HILL

Specifier:

Customer: Code reports:

**B**1

CCMC 12472-R

Designer: Company: LBV

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	3.77.75	an sand	10.00							5.94															

11-05-04

B2

## Total Horizontal Product Length = 11-05-04

## 

Reaction St	ummary (Down / U	piiit) (ibs)			
Bearing	Live	Dead	Snow	Wind	
B1, 3"	183 / 0	119 / 0			
B2, 3"	800 / 0	428 / 0			

Lo	ad Summary						Live	Dead	Snow	Wind	Tributary
	Description	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	11-05-04	Тор		5			00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	11-05-04	Top	9	4			n\a
2	STAIR	Unf. Lin. (lb/ft)	L	07-09-04	11-05-04	Тор	240	120		and a graduated a single	n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	2495 ft-lbs	11610 ft-lbs	21.5%	1	08-03-03
End Shear	1177 lbs	5785 lbs	20.4%	1	10-04-12
Total Load Deflection	L/992 (0.134")	n\a	24.2%	4	06-03-09
Live Load Deflection	L/999 (0.085")	n\a	n\a	5	06-03-09
Max Defl.	0.134"	n\a	n\a	4	06-03-09
Span / Depth	14.0				

Bearing	Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Hanger	3" x 1-3/4"	423 lbs	n\a	6.6%	HUS1.81/10
B2	Hanger	3" x 1-3/4"	1735 lbs	n\a	27.1%	HUS1.81/10

## Disclosure

CONFORMS TO OBG 2012

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dwg No. TAN 14432-20 STRUCTURAL COMPONENT ONLY

BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,

## Cautions

Header for the hanger HUS1.81/10 is a Double 1-3/4" x 9-1/2" LVL Beam.

Hanger model HUS1.81/10 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

## Notes

Design meets Code minimum (L/240) Total load deflection criteria.

Design meets Code minimum (L/360) Live load deflection criteria.

Calculations assume member is fully braced.

Hanger Manufacturer: Unassigned

Resistance Factor phi has been applied to all presented results per CSA O86.

Resistance Factor phi has been applied to all presented results per CSA O86. AMENDED 2020 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition. Importance Factor: Normal Part code: Part 9





## Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP

2ND FLR FRAMING\Flush Beams\B7(i3791) (Flush Beam)

Dry | 1 span | No cant.

October 20, 2020 10:01:22

PASSED

**Build 7493** 

Job name:

Customer:

Code reports:

Address: City, Province, Postal Code: RICHMOND HILL

CCMC 12472-R

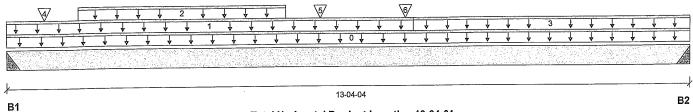
File name:

38-7.mmdl Description: 2ND FLR FRAMING\Flush Beams\B7(i3791)

Specifier:

Designer: LBV

Company:



## Total Horizontal Product Length = 13-04-04

Reaction Su	mmary (Down / Ul	olift) (IDS)			
Bearing	Live	Dead	Snow	Wind	
B1, 4"	935 / 0	544 / 0			
B2, 4"	848 / 0	504 / 0			

	ad Summary						Live	Dead	Snow	Wind	Tributary
Tag	_	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	13-04-04	Тор		10			00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	07-10-02	Top	6	3			n\a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	01-04-12	05-04-12	Top	73	37			n\a
2	FC2 Floor Material	Unf. Lin. (lb/ft)	L	07-10-02	13-04-04	Тор	9	4			n\a
ر ا	J5(i3919)	Conc. Pt. (lbs)	L	00-08-12	00-08-12	Тор	81	41			n\a
4	, , ,	Conc. Pt. (lbs)	L	06-00-12	06-00-12	Top	313	156			n\a
5 6	J2(i3929)	Conc. Pt. (lbs)	Ĺ	07-08-05		•	998	527			n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	9630 ft-lbs	23220 ft-lbs	41.5%	1	07-04-12
End Shear	1968 lbs	11571 lbs	17.0%	1	01-01-08
Total Load Deflection	L/424 (0.363")	n\a	56.6%	4	06-08-12
Live Load Deflection	L/664 (0.231")	n\a	54.2%	5	06-08-12
Max Defl.	0.363"	n\a	n\a	4	06-08-12
Snan / Denth	16.2				

Bearir	ng Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Hanger	4" x 3-1/2"	2082 lbs	n\a	12.2%	HGUS410
B2	Hanger	4" x 3-1/2"	1902 lbs	n\a	11.1%	HGUS410

Header for the hanger HGUS410 is a Double 1-3/4" x 9-1/2" LVL Beam.

Hanger model HGUS410 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.



STRUCTURAL COMPONENT ONLY





## Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP

PASSED

2ND FLR FRAMING\Flush Beams\B7(i3791) (Flush Beam)

Dry | 1 span | No cant.

October 20, 2020 10:01:22

**Build 7493** 

Job name:

Address:

Customer:

Code reports:

City, Province, Postal Code: RICHMOND HILL

CCMC 12472-R

38-7.mmdl File name:

Description: 2ND FLR FRAMING\Flush Beams\B7(i3791)

Specifier:

Designer:

Company:

## Notes

Design meets Code minimum (L/240) Total load deflection criteria.

Design meets Code minimum (L/360) Live load deflection criteria.

Calculations assume unbraced length of Top: 00-00-00, Bottom: 00-00-00.

CONFORMS TO OBC 2012

Hanger Manufacturer: Unassigned

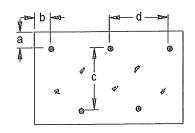
Resistance Factor phi has been applied to all presented results per CSA O86.

AWENDED 2020

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition. Importance Factor: Normal Part code: Part 9

## Connection Diagram: Full Length of Member





a minimum = 2" b minimum = 3"

Calculated Side Load = 1410.1 lb/ft Connectors are: 16d ... A ... Nails

3-1/2" ARDOX SPIRAL



STRUCTURAL COMPONENT ONLY

## Disclosure

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BC CALC®, BC FRAMER®, AJS™ ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,





City, Province, Postal Code: RICHMOND HILL

## Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP

PASSED

October 7, 2020 08:28:31

## 2ND FLR FRAMING\Flush Beams\B8(i2881) (Flush Beam) Dry | 1 span | No cant.

**BC CALC® Member Report** 

**Build 7493** Address:

Customer:

Code reports:

Job name:

File name:

38-7.mmdl Description: 2ND FLR FRAMING\Flush Beams\B8(i2881)

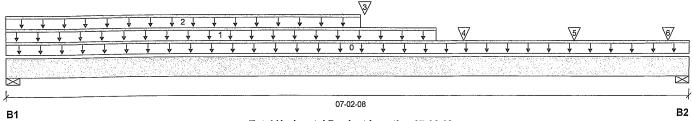
Specifier:

LBV

Wind

CCMC 12472-R

Designer: Company:



## Total Horizontal Product Length = 07-02-08

Snow

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead
B1, 2-3/4"	1612 / 0	877 / 0
B2, 5-1/4"	2160 / 0	1158 / 0

Loa	ad Summary						Live	Dead	Snow	Wind	Tributary
	Description	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	07-02-08	Тор		10			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-00-00	04-05-12	Top	239	120			n\a
2	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	03-08-04	Top	17	9			n\a
3	-	Conc. Pt. (lbs)	L	03-08-13	03-08-13	Тор	1103	627			n\a
4	-	Conc. Pt. (lbs)	L	04-09-07	04-09-07	Top	632	317			n\a
5	-	Conc. Pt. (lbs)	L	05-11-12	05-11-12	Top	632	317			n\a
6	J1(i3021)	Conc. Pt. (lbs)	L	06-11-12	06-11-12	Тор	271	136			n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Controls Summary				Case	
Pos. Moment	8189 ft-lbs	23220 ft-lbs	35.3%	1	03-08-04
End Shear	4096 lbs	11571 lbs	35.4%	1	05-11-12
Total Load Deflection	L/999 (0.085")	n\a	n\a	4	03-07-02
Live Load Deflection	L/999 (0.055")	n\a	n\a	5	03-07-02
Max Defl.	0.085"	n\a	n\a	4	03-07-02
Span / Depth	8.4				

	Bearing	Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
۰	B1	Wall/Plate	2-3/4" x 3-1/2"	3514 lbs	59.4%	29.9%	Spruce-Pine-Fir
	B2	Wall/Plate	5-1/4" x 3-1/2"	4688 lbs	41.5%	20.9%	Spruce-Pine-Fir

## Notes

Design meets Code minimum (L/240) Total load deflection criteria.

Design meets Code minimum (L/360) Live load deflection criteria.

CONFORMS TO OBC 2012

Calculations assume member is fully braced.

Resistance Factor phi has been applied to all presented results per CSA O86.

AMENDED 2020

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

POVINCE OF OTHE

STRUCTURAL COMPONENT ONLY





PASSED

October 7, 2020 08:28:31

## 2ND FLR FRAMING\Flush Beams\B8(i2881) (Flush Beam) Dry I 1 span | No cant.

**BC CALC® Member Report** 

**Build 7493** 

Job name:

Address:

Customer: Code reports:

City, Province, Postal Code: RICHMOND HILL

CCMC 12472-R

File name:

38-7.mmdl

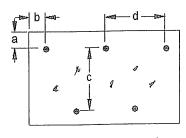
Description: 2ND FLR FRAMING\Flush Beams\B8(i2881)

Specifier:

Designer: LBV

Company:

## Connection Diagram: Full Length of Member



a minimum = 🐉 b minimum = 3"

Calculated Side Load = 1507.4 lb/ft Connectors are: 16d / Nails

3-1/2" ARDOX SPIRAL



086 NO. TAM/4439-20 STRUCTURAL COM. ONENT ONLY

## Disclosure

Use of the Boise Cascade Software is subject to the terms of the End User License Agreement (EULA). Completeness and accuracy of input must be reviewed and verified by a qualified engineer or other appropriate expert to assure its adequacy, prior to anyone relying on such output as evidence of suitability for a particular application. The output here is based on building code-accepted design properties and analysis methods. Installation of Boise Cascade engineered wood products must be in accordance with current Installation Guide and applicable building codes. To obtain Installation Guide or ask questions, please call (800)232-0788 before installation.

BC CALC®, BC FRAMER® , AJS™ ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,





## Triple 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP

PASSED

## 2ND FLR FRAMING\Dropped Beams\B9DR(i3976) (Dropped Beam)

**BC CALC® Member Report** 

Dry | 1 span | No cant.

October 20, 2020 10:01:22

**Build 7493** 

Job name: Address:

Customer:

File name:

38-7.mmdl Description: 2ND FLR FRAMING\Dropped Beams\B9DR(i3976)

City, Province, Postal Code: RICHMOND HILL

Specifier: Designer: LBV

Wind

CCMC 12472-R Code reports:

Company:

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																	13-0	5-08	3																			В
R1																																						Þ

Total Horizontal Product Length = 13-05-08

Reaction Summary (Down / Unlift) (lbs)

Reaction Sun	mindly (Donn. of	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		
Bearing	Live	Dead	Snow	
B1. 4-1/4"	3445 / 0	1845 / 0		
B2 5-1/4"	3597 / 0	1920 / 0		

اما	ad Summary						Live	Dead	Snow	Wind	Tributary
Tag	· · · · · · · · · · · · · · · · · · ·	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L.	00-00-00	13-05-08	Тор		18			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-02-12	04-00-12	Top	283	142			n\a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	04-00-12	13-00-12	Top	552	276			n\a
2	J1(i3895)	Conc. Pt. (lbs)	L	00-10-12	00-10-12	Тор	316	158			n\a
ى م		Conc. Pt. (lbs)	L	02-02-12	02-02-12	Top	361	181			n\a
4	J1(i3763)	Conc. Pt. (lbs)	ī	03-06-12	03-06-12		316	158			n\a
5	.11(i3912)	CONC. Pt. (IDS)	L	03-00-12	03-00-12	ιορ	310	100			ma

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	23997 ft-lbs	55212 ft-lbs	43.5%	1	06-06-12
End Shear	6792 lbs	21696 lbs	31.3%	1	01-04-02
Total Load Deflection	L/451 (0.341")	n\a	53.3%	4	06-06-12
Live Load Deflection	L/691 (0.222")	n\a	52.1%	5	06-06-12
Max Defl.	0.341"	n\a	n\a	4	06-06-12
Span / Depth	12.9				

Bearin	ng Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	4-1/4" x 5-1/4"	7474 lbs	25.1%	27.5%	Spruce-Pine-Fir
B2	Wall/Plate	5-1/4" x 5-1/4"	7795 lbs	21.2%	23.2%	Spruce-Pine-Fir

## Notes

Design meets Code minimum (L/240) Total load deflection criteria.

Design meets Code minimum (L/360) Live load deflection criteria.

CUNPORMS TO DBC 2012

Calculations assume unbraced length of Top: 01-02-12, Bottom: 01-02-12. Resistance Factor phi has been applied to all presented results per CSA O86.

AMENDED 2020

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

SOLINCE OF ONLY und no. Tan 1444020

STRUCTURAL COMPONENT ONLY





## Triple 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP

PASSED

## 2ND FLR FRAMING\Dropped Beams\B9DR(i3976) (Dropped Beam)

Dry I 1 span | No cant.

October 20, 2020 10:01:22

**Build 7493** 

Job name:

Address:

Customer:

Code reports:

City, Province, Postal Code: RICHMOND HILL

CCMC 12472-R

File name:

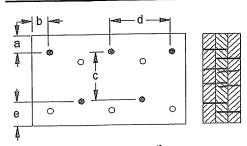
38-7.mmdl 2ND FLR FRAMING\Dropped Beams\B9DR(i3976) Description:

Specifier:

Designer: LBV

Company:

## Connection Diagram: Full Length of Member



4. pous

a minimum =  $\hat{\mathbb{R}}$ "

c = 6.7/8" d = 20 12

b minimum = 3" e minimum = 3"

Nailing applies to both sides of the member

Connectors are: ' -3-1/2" ARDOX SPIRAL



696 NO. TAN 1444220 STRUCTURAL COMPONENT ONLY

## Disclosure

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PASSED

## 2ND FLR FRAMING\Flush Beams\B20(i4005) (Flush Beam)

Dry | 1 span | No cant.

October 20, 2020 10:01:22

Build 0

Job name:

Address:

**BC CALC® Member Report** 

City, Province, Postal Code: RICHMOND HILL

Customer: CCMC 12472-R Code reports:

38-7.mmdl File name:

2ND FLR FRAMING\Flush Beams\B20(i4005) Description:

Specifier:

Designer: **LBV** 

Company:

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FULLY SUPPORTED BOTTON ENGE ALONG FULL WITH AND ALONG FULL ENETTH,
Total Horizontal Product Length = 14-03-12

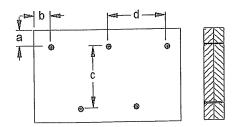
10	ad Summary						Live	Dead	Snow	Wind	Tributary
	Description	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	14-03-12	Тор		10			00-00-00
1	E22(i438)	Unf. Lin. (lb/ft)	L	00-00-00	14-03-12	Top		81			n\a
2	B10(i3898)	Conc. Pt. (lbs)	L	01-00-04	01-00-04	Top	1038	561			n\a
3	-	Conc. Pt. (lbs)	L	12-09-10	12-09-10	Top	1050	606			n\a
4	J1(i3804)	Conc. Pt. (lbs)	L	14-00-08	14-00-08	Тор	279	139			n\a

		Factored	Demand/		
Controls Summary	Factored Demand	Resistance	Resistance	Case	Location
Dist. Load	126.09 lb/ft	37469.25 lb/ft	0.3%		
Conc. Load	2333 lbs	16813 lbs	13.9%		

## Cautions

Concentrated side load(s) 3 are closer than 18" from end of member. Please consult a technical representative or Professional of Record.

## Connection Diagram: Full Length of Member



a minimum = 2"

c = 5-1/2" d=@"12"

b minimum = 3"

Calculated Side Load = 296.1 lb/ft Connectors are: 16d 🐪 Nails

3-1/2" ARDOX SPIRAL Connection Diagrams: Concentrated Side Loads

Connection Tag: A

Applies to load tag(s): 4

WW HO . TAW/4441-20 STRUCTURAL COMPONENT ONLY





PASSED

October 20, 2020 10:01:22

2ND FLR FRAMING\Flush Beams\B20(i4005) (Flush Beam)

**BC CALC® Member Report** Build 0

Job name:

Address:

City, Province, Postal Code: RICHMOND HILL

Customer: Code reports:

CCMC 12472-R

Dry | 1 span | No cant.

File name: 38-7.mmdl

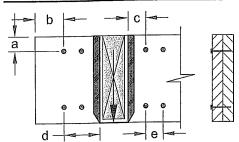
Description: 2ND FLR FRAMING\Flush Beams\B20(i4005)

Specifier:

Designer: LBV

Company:

## Connection Diagrams: Concentrated Side Loads



a minimum = 2" b minimum = 4"

c minimum = 4"

d maximum = 12" e minimum = 4"

Connectors are:

Nails

CONFORMS TO OBC 2012

AMENDED 2020

3-1/2" ARDOX SPIRAL



846 NO . TAW 14441 -20 STRUCTURAL COMPONENT ONLY

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BC CALC®, BC FRAMER®, AJS™,  $\mathsf{ALLJOIST}^{\circledR}\,,\,\mathsf{BC}\,\mathsf{RIM}\,\,\mathsf{BOARD}^{\intercal\!\mathsf{M}},\,\mathsf{BCI}^{\circledR}\,,$ BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,





City, Province, Postal Code: RICHMOND HILL

CCMC 12472-R

## Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP

PASSED

B2

October 7, 2020 08:31:38

## 1ST FLR FRAMING\Flush Beams\B1S(i3287) (Flush Beam)

BC CALC® Member Report

Build 7493

Job name: Address:

Customer:

В1

Code reports:

Dry | 1 span | No cant.

File name: 38-7 SUNKEN .mmdl

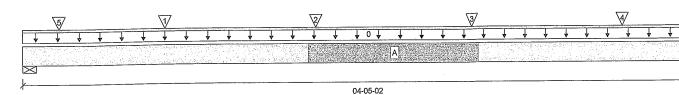
Description:

1ST FLR FRAMING\Flush Beams\B1S(i3287)

Specifier:

Designer: LBV

Company:



## Total Horizontal Product Length = 04-05-02

Reaction Summary (Down / Uplift) (lbs)

Reaction Sun	nmary (Down / O	hiiit) (ins)			
Bearing	Live	Dead	Snow	Wind	
B1, 5-1/2"	396 / 0	259 / 0			
B2, 4"	296 / 0	171 / 0			

Los	ad Summary						Live	Dead	Snow	Wind	Tributary
Tag	-	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	04-05-02	Тор		10			00-00-00
1	B3S(i3361)	Conc. Pt. (lbs)	L	00-10-14	00-10-14	Top	159	97			n\a
2	J2(i3325)	Conc. Pt. (lbs)	L	01-10-08	01-10-08	Top	150	75			n\a
3	J2(i3411)	Conc. Pt. (lbs)	L	02-10-08	02-10-08	Тор	152	76			n\a
1	J2(i3280)	Conc. Pt. (lbs)	L	03-10-08	03-10-08	Top	124	62			n\a
5	E15(i385)	Conc. Pt. (lbs)	L	00-02-12	00-02-12	Тор	107	77			n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	610 ft-lbs	23220 ft-lbs	2.6%	1	01-10-08
End Shear	490 lbs	11571 lbs	4.2%	1	01-03-00
Total Load Deflection	L/999 (0.002")	n\a	n\a	4	02-03-00
Live Load Deflection	L/999 (0.001")	n\a	n\a	5	02-03-00
Max Defl.	0.002"	n\a	n\a	4	02-03-00
Span / Depth	4.7				

Bearin	g Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Resistance Member	Material
B1	Wall/Plate	5-1/2" x 3-1/2"	918 lbs	7.8%	3.9%	Spruce-Pine-Fir
B2	Hanger	4" x 3-1/2"	657 lbs	n\a	3.8%	HGUS410

## **Cautions**

Header for the hanger HGUS410 is a Single 1-3/4" x 9-1/2" LVL Beam.

Hanger model HGUS410 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

## Notes

Design meets Code minimum (L/240) Total load deflection criteria.

Design meets Code minimum (L/360) Live load deflection criteria.

Calculations assume member is fully braced.

n unu is p

Hanger Manufacturer: Unassigned

Resistance Factor phi has been applied to all presented results per CSA O86.

AMENDED 2020

CONFORMS TO OBC 2012

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9



9W6 NO.TAM1444320 STRUCTURAL CONFONENT ONLY





PASSED

October 7, 2020 08:31:38

1ST FLR FRAMING\Flush Beams\B1S(i3287) (Flush Beam)

**BC CALC® Member Report** 

**Build 7493** Job name:

Address:

City, Province, Postal Code: RICHMOND HILL

Customer:

CCMC 12472-R Code reports:

Dry | 1 span | No cant.

38-7 SUNKEN .mmdl File name:

Description:

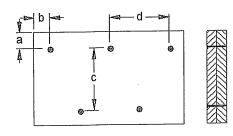
1ST FLR FRAMING\Flush Beams\B1S(i3287)

Specifier:

LBV Designer:

Company:

## Connection Diagram: Full Length of Member



a minimum = 2" b minimum = 3" c = 5-1/2" d = 24"  $e^{\alpha}$ 

Calculated Side Load = 179.9 lb/ft

Connectors are: Comment

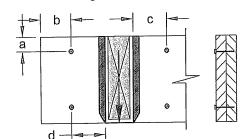
Nails

3-1/2" ARDOX SPIRAL

## **Connection Diagrams: Concentrated Side Loads**

Connection Tag: A

Applies to load tag(s): 3+4



a minimum = 2"

b minimum = 4"

c minimum = 4"

d maximum = 12"

Connectors are:

Nails

3-1/2" ARDOX SPIRAL



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### Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP

PASSED

Tributary

00-00-00 n\a n\a n\a n\a

1ST FLR FRAMING\Flush Beams\B2S(i3401) (Flush Beam)

Dry | 1 span | No cant.

October 7, 2020 08:31:38

**Build 7493** 

Job name:

Customer:

Code reports:

Address:

City, Province, Postal Code: RICHMOND HILL

CCMC 12472-R

File name:

38-7 SUNKEN .mmdl

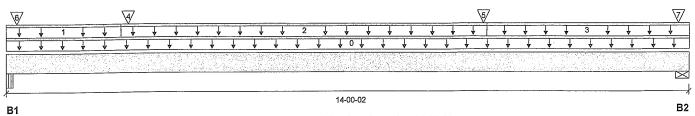
CUNFORMS TO OBC 2012

1ST FLR FRAMING\Flush Beams\B2S(i3401) Description:

Specifier:

Designer: LBV

Company:



#### Total Horizontal Product Length = 14-00-02

### Reaction Summary (Down / Uplift) (lbs)

I COUCION GON	1111 Ct 1. y	1		
Bearing	Live	Dead	Snow	Wind
B1, 5-1/4"	511 / 0	320 / 0		
B2, 3-1/2"	538 / 0	323 / 0		

Loa	ad Summary						Live	Dead	Snow	Wind
Tag	· .	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	14-00-02	Top		5		
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	02-03-14	Top	9	4		
2	FC1 Floor Material	Unf. Lin. (lb/ft)	L	02-03-14	09-09-06	Top	20	10		
3	FC1 Floor Material	Unf. Lin. (lb/ft)	L	09-09-06	14-00-02	Top	9	4		saas bahdasta daa
4	B1S(i3287)	Conc. Pt. (lbs)	L	02-05-10	02-05-10	Top	267	153	ئانىيانىڭ ئامىي سەختىلىقان	FESSIO
5	B6S(i3557)	Conc. Pt. (lbs)	L	09-08-08	09-08-08	Top	574	295	A Char	
6	1(i418)	Conc. Pt. (lbs)	L	00-02-10	00-02-10	Тор		12	3 N A	1011
7	E10(i382)	Conc. Pt. (lbs)	L	13-09-06	13-09-06	Top		12 🕴	Comment	SUMMERSON
			Factored	Dem	and/			1	S. KI	ATSOULA

Controls Summary	Factored Demand	Resistance	Resistance	Case	Location
Pos. Moment	4641 ft-lbs	11610 ft-lbs	40.0%	1	09-08-08
End Shear	1169 lbs	5785 lbs	20.2%	1	12-11-02
Total Load Deflection	L/406 (0.397")	n\a	59.2%	4	07-05-06
Live Load Deflection	L/639 (0.252")	n\a	56.3%	5	07-05-06
Max Defl.	0.397"	n\a	n\a	4	07-05-06
Span / Depth	16.9				

Bearing	a Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Beam	5-1/4" x 1-3/4"	1166 lbs	29.7%	10.4%	Unspecified
B2	Wall/Plate	3-1/2" x 1 <b>-</b> 3/4"	1211 lbs	32.1%	16.2%	Spruce-Pine-Fir

#### Notes

Design meets Code minimum (L/240) Total load deflection criteria.

Design meets Code minimum (L/360) Live load deflection criteria.

Calculations assume member is fully braced.

Resistance Factor phi has been applied to all presented results per CSA O86. AMENDED 2020 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA 086.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9



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BC CALC®, BC FRAMER®, AJS™ ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,





## Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP

PASSED

October 7, 2020 08:31:38

1ST FLR FRAMING\Flush Beams\B3S(i3361) (Flush Beam)

Dry | 1 span | No cant. **BC CALC® Member Report** 

**Build 7493** 

Job name:

Address: City, Province, Postal Code: RICHMOND HILL

CCMC 12472-R

Customer: Code reports:

File name: Description: 38-7 SUNKEN .mmdl

Wind

Live

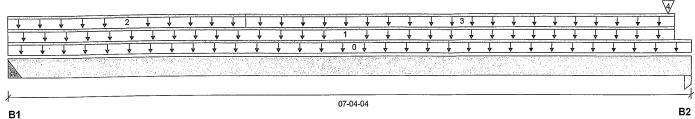
Dead

1ST FLR FRAMING\Flush Beams\B3S(i3361)

Specifier:

Designer: LBV

Company:



Total Horizontal Product Length = 07-04-04

Snow

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead
B1, 3"	151 / 0	93 / 0
B2 3-1/2"	760 / 0	406 / 0

Lo	ad Summary						Live	Dead	Snow	Wind
Tag	•	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	07-04-04	Top		5		
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	07-02-00	Top	19	10		
2	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	02-06-04	Top	18	9	15 Miles 19 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	TESSIO,
3	FC1 Floor Material	Unf. Lin. (lb/ft)	L	02-06-04	07-02-00	Top	27	14	A Children	O SERVICE AND A
4	B6S(i3557)	Conc. Pt. (lbs)	L	07-01-02	07-01-02	Top	600	308		1042
Co	ntrols Summarv	Factored Demand	Factored Resistance	Dem Resi	and/ stance	Case	Location	in the second	Z s k	ATSOULA

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	607 ft-lbs	11610 ft-lbs	5.2%	1	03-09-00
End Shear	267 lbs	5785 lbs	4.6%	1	06-03-04
Total Load Deflection	L/999 (0.015")	n\a	n\a	4	03-08-05
Live Load Deflection	L/999 (0.009")	n\a	n\a	5	03-08-05
Max Defl.	0.015"	n\a	n\a	4	03-08-05
Span / Depth	8.8		1		

Bearing Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material	
B1 Hanger	3" x 1-3/4"	343 lbs	n\a	5.4%	HUS1.81/10	
B2 Column	3-1/2" x 1-3/4"	1648 lbs	41.4%	22.1%	Unspecified	

### Cautions

Header for the hanger HUS1.81/10 is a Double 1-3/4" x 9-1/2" LVL Beam.

Hanger model HUS1.81/10 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

#### Notes

Design meets Code minimum (L/240) Total load deflection criteria.

Design meets Code minimum (L/360) Live load deflection criteria.

Calculations assume member is fully braced.

Hanger Manufacturer: Unassigned

AMENDED 2020 Resistance Factor phi has been applied to all presented results per CSA O86.

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

CONFORMS TO OBG 2012

## SAMCE OF 004 NO. TAN 1444520 STRUCTURAL COMPONENT ONLY

Wind

Snow

Tributary

00-00-00 n\a

### Disclosure

Use of the Boise Cascade Software is subject to the terms of the End User License Agreement (EULA). Completeness and accuracy of input must be reviewed and verified by a qualified engineer or other appropriate expert to assure its adequacy, prior to anyone relying on such output as evidence of suitability for a particular application. The output here is based on building code-accepted design properties and analysis methods. Installation of Boise Cascade engineered wood products must be in accordance with current Installation Guide and applicable building codes. To obtain Installation Guide or ask questions, please call (800)232-0788 before installation.

BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,





### Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP

PASSED

October 7, 2020 08:31:38

1ST FLR FRAMING\Flush Beams\B6S(i3557) (Flush Beam)

**BC CALC® Member Report Build 7493** 

Job name:

Address:

City, Province, Postal Code: RICHMOND HILL

Customer: CCMC 12472-R Code reports:

Dry | 1 span | No cant.

38-7 SUNKEN .mmdl

File name: Description: 1ST FLR FRAMING\Flush Beams\B6S(i3557)

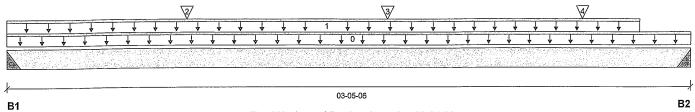
Wind

CONFORMS TO OBG 2012

Specifier:

Designer: LBV

Company:



#### Total Horizontal Product Length = 03-05-06

Snow

Reaction Summary (Down / Uplift) (lbs)

Live 603 / 0 310 / 0 B1, 3" 570 / 0 293 / 0 B2, 3"

Lo	ad Summary						Live	Dead	Snow	Wind	Tributary
Tag	· · · · · · · · · · · · · · · · · · ·	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	03-05-06	Тор		5			00-00-00
1	STAIR	Unf. Lin. (lb/ft)	L	00-00-00	03-02-04	Top	240	120			n\a
2	J2(i3325)	Conc. Pt. (lbs)	L	00-10-12	00-10-12	Тор	144	72			n\a
3	J2(i3411)	Conc. Pt. (lbs)	L	01-10-12	01-10-12	Тор	146	73		general stands of the	n\a
4	J2(i3280)	Conc. Pt. (lbs)	L	02-10-12	02-10-12	Тор	119	59		ESSIO	l√ n\a

		Factored	Demand/		
Controls Summary	Factored Demand	Resistance	Resistance	Case	Location
Pos. Moment	984 ft-lbs	11610 ft-lbs	8.5%	1	01-10-12
End Shear	1060 lbs	5785 lbs	18.3%	1	02-04-14
Total Load Deflection	L/999 (0.005")	n\a	n\a	4	01-08-13
Live Load Deflection	L/999 (0.003")	n\a	n\a	5	01-08-13
Max Defl.	0.005"	n\a	n\a	4	01-08-13
Span / Depth	3.9				

Bearing	ı Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Hanger	3" x 1-3/4"	1292 lbs	n\a	20.2%	HUS1.81/10
B2	Hanger	3" x 1-3/4"	1222 lbs	n\a	19.1%	HUS1.81/10

Header for the hanger HUS1.81/10 is a Single 1-3/4" x 9-1/2" LVL Beam.

Hanger model HUS1.81/10 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

#### **Notes**

Design meets Code minimum (L/240) Total load deflection criteria.

Design meets Code minimum (L/360) Live load deflection criteria.

Calculations assume member is fully braced.

Hanger Manufacturer: Unassigned

Resistance Factor phi has been applied to all presented results per CSA O86. AMENDED 2020 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA 086.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

## BWB NO. TAM 1444620 STRUCTURÁL

POVINCE OF

# Disclosure ONLY

Use of the Boise Cascade Software is subject to the terms of the End User License Agreement (EULA). Completeness and accuracy of input must be reviewed and verified by a qualified engineer or other appropriate expert to assure its adequacy, prior to anyone relying on such output as evidence of suitability for a particular application. The output here is based on building code-accepted design properties and analysis methods. Installation of Boise Cascade engineered wood products must be in accordance with current Installation Guide and applicable building codes. To obtain Installation Guide or ask questions, please call (800)232-0788 before installation.

BC CALC®, BC FRAMER® , AJS™ ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,





### Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP

PASSED

2ND FLR FRAMING\Flush Beams\B12A(i3206) (Flush Beam)

Dry | 1 span | No cant.

October 7, 2020 09:15:09

**Build 7493** 

Job name: Address:

File name: Description:

38-7.mmdl 2ND FLR FRAMING\Flush Beams\B12A(i3206)

City, Province, Postal Code: RICHMOND HILL

Specifier:

Customer:

Designer:

LBV

Code reports:

CCMC 12472-R

Company:

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																			US	-04-0	UZ																		

**B1** 

Total Horizontal Product Length = 09-04-02

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4-1/8"	869 / 0	1395 / 0	1125 / 0	
B2 5-1/4"	296 / 0	268 / 0	92 / 0	

10	ad Summary						Live	Dead	Snow	Wind	Tributary
Tag		Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	09-04-02	Top		10			00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	09-01-08	Top	27	14			n\a
2	E26(i435)	Unf. Lin. (lb/ft)	L	00-00-00	00-10-00	Top		108	111		n\a
2	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-10-00	09-01-08	Тор	26	13			n\a
4	-	Conc. Pt. (lbs)	L	00-11-12	00-11-12	Тор	695	1247	1117		n\a

		Factored	Demand/	_	
Controls Summary	Factored Demand	Resistance	Resistance	Case	Location
Pos. Moment	2871 ft-lbs	23220 ft-lbs	12.4%	1	02-02-12
End Shear	3368 lbs	11571 <b>l</b> bs	29.1%	13	01-01-10
Total Load Deflection	L/999 (0.059")	n\a	n\a	35	04-02-04
Live Load Deflection	L/999 (0.035")	n\a	n\a	51	04-02-04
Max Defl.	0.059"	n\a	n\a	35	04-02-04
Span / Depth	11.0				

Rearin	g Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Beam	4-1/8" x 3-1/2"	4300 lbs	69.7%	24.4%	Unspecified
B2	Beam	5-1/4" x 3-1/2"	871 lbs	11.1%	3.9%	Unspecified

### **Cautions**

Concentrated side load(s) 10,11,12,13,14 are closer than 18" from end of member. Please consult a technical representative or Professional of Record.

#### Notes

Design meets Code minimum (L/240) Total load deflection criteria.

Design meets Code minimum (L/360) Live load deflection criteria.

Calculations assume member is fully braced.

CONFORMS TO OBC 2012

Resistance Factor phi has been applied to all presented results per CSA O86.

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA 086.020

Unbalanced snow loads determined from building geometry were used in selected product's verification.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9



ove No. TAM/4447-20 STRUCTURAL COMPONENT ONLY





### Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP

PASSED

October 7, 2020 09:15:09

2ND FLR FRAMING\Flush Beams\B12A(i3206) (Flush Beam) Dry | 1 span | No cant.

**BC CALC® Member Report** 

**Build 7493** Job name:

Address:

City, Province, Postal Code: RICHMOND HILL

Customer:

CCMC 12472-R Code reports:

File name:

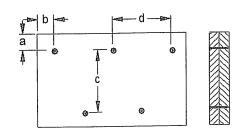
38-7.mmdl Description: 2ND FLR FRAMING\Flush Beams\B12A(i3206)

Specifier:

LBV Designer:

Company:

### Connection Diagram: Full Length of Member



a minimum = 2" b minimum = 3"

c = 5-1/2" d = 24 B

Connectors are:

Nails

3-1/2" ARDOX SPIRAL



184 NO. TAM 1444220 STRUCTURAL COMPONENT ONLY

#### Disclosure

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BC CALC®, BC FRAMER®, AJS™ ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,





### Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP

PASSED

### 2ND FLR FRAMING\Flush Beams\B13A(i3222) (Flush Beam)

Dry | 1 span | No cant.

October 7, 2020 09:15:09

**Build 7493** 

Job name: Address:

City, Province, Postal Code: RICHMOND HILL

Customer: Code reports:

CCMC 12472-R

File name:

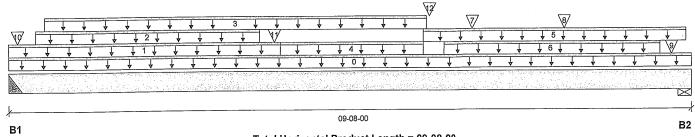
38-7.mmdl

2ND FLR FRAMING\Flush Beams\B13A(i3222) Description:

Specifier: Designer:

Company:

LBV



#### Total Horizontal Product Length = 09-08-00

Reaction Sur	nmary (Down / O	pint) (ibs)			
Bearing	Live	Dead	Snow	Wind	
B1. 4"	714 / 0	1232 / 0	1104 / 0		
B2, 5-1/2"	858 / 0	1389 / 0	1141 / 0		

Los	ad Summary						Live	Dead	Snow	Wind	Tributary
Tag		Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	09-08-00	Тор		10			00-00-00
1	E33(i3202)	Unf. Lin. (lb/ft)	L	00-00-00	03-09-08	Тор		81			n\a
2	E33(i3202)	Unf. Lin. (lb/ft)	L	00-04-08	03-06-00	Тор		56	129		n\a
3	Smoothed Load	Unf. Lin. (lb/ft)	L	00-06-00	05-10-00	Top	168	84			n\a
4	E34(i3232)	Unf. Lin. (lb/ft)	L	03-09-08	05-09-08	Тор		41			n\a
5	E25(i433)	Unf. Lin. (lb/ft)	L	05-09-08	09-07-00	Тор		81			n\a
6	E25(i433)	Unf. Lin. (lb/ft)	L	06-01-00	09-02-08	Тор		56	129		n\a
7	J4(i3230)	Conc. Pt. (lbs)	L	06-06-00	06-06-00	Top	225	113			n\a
8	J4(i3228)	Conc. Pt. (lbs)	L	07-10-00	07-10-00	Тор	225	113			n\a
9	-	Conc. Pt. (lbs)	L	09-04-08	09-04-08	Top	221	382	570		n\a
10	E33(i3202)	Conc. Pt. (lbs)	L	00-01-08	00-01-08	Top		216	536		n\a
11	E33(i3202)	Conc. Pt. (lbs)	L	03-08-08	03-08-08	Тор		93	170		n\a
12	E25(i433)	Conc. Pt. (lbs)	L	05-10-08	05-10-08	Тор		90	163		n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	6543 ft-lbs	23220 ft-lbs	28.2%	1	05-02-00
End Shear	2781 lbs	11571 lbs	24.0%	1	01-01-08
Total Load Deflection	L/711 (0.152")	n\a	33.8%	35	04-10-00
Live Load Deflection	L/999 (0.087")	n\a	n\a	51	04-10-00
Max Defl.	0.152"	n\a	n\a	35	04-10-00
Span / Depth	11.4				

Bearir	ng Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Resistance Member	Material
B1	Hanger	4" x 3-1/2"	3909 lbs	n\a	22.9%	HGUS410
B2	Wall/Plate	5-1/2" x 3-1/2"	4307 lbs	36.4%	18.3%	Spruce-Pine-Fir

Cautions

Header for the hanger HGUS410 is a Double 1-3/4" x 9-1/2" LVL Beam. Hanger model HGUS410 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.



OVG NO. TAM/44820 STRUCTURAL COMPONENT ONLY





### Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP

PASSED

October 7, 2020 09:15:09

2ND FLR FRAMING\Flush Beams\B13A(i3222) (Flush Beam)

**BC CALC® Member Report** 

**Build 7493** Job name:

Address: City, Province, Postal Code: RICHMOND HILL Dry | 1 span | No cant.

File name:

Description: 2ND FLR FRAMING\Flush Beams\B13A(i3222)

Specifier:

Designer: LBV

38-7.mmdl

Company:

Customer:

Code reports:

CCMC 12472-R

Notes

Design meets Code minimum (L/240) Total load deflection criteria. Design meets Code minimum (L/360) Live load deflection criteria.

Calculations assume member is fully braced.

CONFORMS TO DEC 2012

Hanger Manufacturer: Unassigned

Resistance Factor phi has been applied to all presented results per CSA O86.

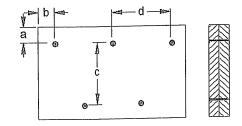
AMENDED 2020

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Unbalanced snow loads determined from building geometry were used in selected product's verification.

Design based on Dry Service Condition. Importance Factor: Normal Part code: Part 9

### Connection Diagram: Full Length of Member



a minimum = 2" b minimum = 3" c = 5-1/2" d=108

Calculated Side Load = 478.8 lb/ft

Connectors are:

Nails 1 3-1/2" ARDOX SPIRAL



DWG NO. TAM 14448-20 STRUCTURAL COMPONENT ONLY

#### Disclosure

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BC CALC®, BC FRAMER®, AJS™ ALLJOIST® , BC RIM BOARD  $^{\text{TM}}$  , BCI® , BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,





## Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP

PASSED

### 2ND FLR FRAMING\Flush Beams\B12(i3620) (Flush Beam)

Dry | 1 span | No cant.

October 7, 2020 09:49:36

**Build 7493** 

Job name: Address:

File name:

38-7 EL B, EL C.mmdl Description: 2ND FLR FRAMING\Flush Beams\B12(i3620)

City, Province, Postal Code: RICHMOND HILL

Specifier:

Customer:

Designer:

LBV

Code reports:

CCMC 12472-R

Company:

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																	-										
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В1

Total Horizontal Product Length = 01-09-04

B2

Reaction Summary (Down / Uplift) (lbs)

Bearing	<sup>"</sup> Live	Dead	Snow	Wind
B1, 5-1/4"	18 / 0	97 / 0	86 / 0	
B2. 5-1/4"	19 / 0	110 / 0	88 / 0	

Loa	ad Summary						Live	Dead	Snow	Wind	Tributary
	Description	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	01-09-04	Тор		10			00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	01-04-00	Top	20	10			n\a
2	E37(i3450)	Unf. Lin. (lb/ft)	L	00-05-08	01-09-04	Top		81			n\a
3	E37(i3450)	Unf. Lin. (lb/ft)	L	00-05-08	01-06-12	Top		31	130		n\a
4	FC2 Floor Material	Unf. Lin. (lb/ft)	L	01-04-00	01-09-04	Top	23	11			n\a
5	E36(i3451)	Conc. Pt. (lbs)	L	00-02-12	00-02-12	Тор		31	30		n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	49 ft-lbs	23220 ft-lbs	0.2%	13	00-10-10
End Shear	136 lbs	11571 lbs	1.2%	23	01-02-12
Span / Depth	1.3				

Bearing	g Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Beam	5-1/4" x 3-1/2"	268 lbs	3.4%	1.2%	Unspecified
B2	Beam	5-1/4" x 3-1/2"	288 lbs	3.7%	1.3%	Unspecified

#### Notes

Calculations assume unbraced length of Top: 00-00-00, Bottom: 00-00-00.

Resistance Factor phi has been applied to all presented results per CSA O86.

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA 086. ANENDED 2020

Unbalanced snow loads determined from building geometry were used in selected product's verification.

Design based on Dry Service Condition. Importance Factor: Normal Part code: Part 9 CONFORMS TO OBC 2012

DUNCE OF ONLY DWS NO. TAM/444921 STRUCTURAL COMPONENT ONLY





### Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP

PASSED

### 2ND FLR FRAMING\Flush Beams\B12(i3620) (Flush Beam)

Dry | 1 span | No cant.

October 7, 2020 09:49:36

**Build 7493** 

Job name:

Customer:

Code reports:

Address: City, Province, Postal Code: RICHMOND HILL

CCMC 12472-R

38-7 EL B, EL C.mmdl File name:

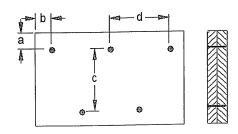
2ND FLR FRAMING\Flush Beams\B12(i3620) Description:

Specifier:

Designer: LBV

Company:

### Connection Diagram: Full Length of Member



a minimum = 2" b minimum = 3" c = 5-1/2" d = @ 8 (

Connectors are: '

Amaria Nails 3-1/2" ARDOX SPIRAL



STRUCTURAL COMPONENT ONLY

#### Disclosure

Use of the Boise Cascade Software is subject to the terms of the End User License Agreement (EULA). Completeness and accuracy of input must be reviewed and verified by a qualified engineer or other appropriate expert to assure its adequacy, prior to anyone relying on such output as evidence of suitability for a particular application. The output here is based on building code-accepted design properties and analysis methods. Installation of Boise Cascade engineered wood products must be in accordance with current Installation Guide and applicable building codes. To obtain Installation Guide or ask questions, please call (800)232-0788 before installation.

BC CALC®, BC FRAMER®, AJS™ ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,



Live Load = 40 psf, Dead Load = 15 psf Simple Spans, L/480 Deflection Limit 5/8" OSB G&N Sheathing







			Ba	are		1/2" Gypsum Ceiling					
Depth	Series		On Centi	e Spacing			· On Centre Spacing				
•		12"	16"	19.2"	24"	12"	16"	19.2"	24"		
	NI-20	15'-1"	14'-2"	13'-9"	N/A	15'-7"	14'-8"	14'-2"	N/A		
	NI-40x	16'-1"	15'-2"	14'-8"	N/A	16'-7"	15'-7"	15'-1"	N/A		
9-1/2"	NI-60	16'-3"	15'-4"	14'-10"	N/A	16'-8"	15'-9"	15'-3"	N/A		
	N1-70	17'-1"	16'-1"	15'-6"	N/A	17'-5"	16'-5"	15'-10"	N/A		
	NI-80	17'-3"	16'-3"	15'-8"	N/A	17'-8"	16'-7"	16'-0"	N/A		
	NI-20	16'-11"	16'-0"	15'-5"	N/A	17'-6"	16'-6"	16'-0"	N/A		
	NI-40x	18'-1"	17'-0"	16'-5"	N/A	18'-9"	17'-6"	16'-11"	N/A		
	NI-60	18'-4"	17'-3"	16'-7"	N/A	19'-0"	17'-8"	17'-1"	N/A		
11-7/8"	NI-70	19'-6"	18'-0"	17'-4"	N/A	20'-1"	18'-7"	17'-9"	N/A		
	NI-80	19'-9"	18'-3"	17'-6"	N/A	20'-4"	18'-10"	17'-11"	N/A		
	NI-90x	20'-4"	18'-9"	17'-11"	N/A	20'-10"	19'-3"	18'-5"	N/A		
	NI-40x	20'-1"	18'-7"	17'-10"	N/A	20'-10"	19'-4"	18'-6"	N/A		
	NI-60	20'-5"	18'-11"	18'-1"	N/A	21'-2"	19'-7"	18'-9"	N/A		
14"	NI-70	21'-7"	20'-0"	19'-1"	N/A	22'-3"	20'-7"	19'-8"	N/A		
	NI-80	21'-11"	20'-3"	19'-4"	N/A	22'-7"	20'-11"	20'-0"	N/A		
	NI-90x	22'-7"	20'-11"	19'-11"	N/A	23'-3"	21'-6"	20'-6"	N/A		
	NI-60	22'-3"	20'-8"	19'-9"	N/A	23'-1"	21'-5"	20'-6"	N/A		
4.011	NI-70	23'-6"	21'-9"	20'-9"	N/A	24'-3"	22'-5"	21'-5"	N/A		
16"	NI-80	23'-11"	22'-1"	21'-1"	N/A	24'-8"	22'-10"	21'-9"	N/A		
	NI-90x	24'-8"	22'-9"	21'-9"	N/A	25'-4"	23'-5"	22'-4"	N/A		

	_		Mid-Spar	n Blocking	Mid-Span Blocking and 1/2" Gypsum Ceiling				
Depth	Series		On Centr	e Spacing			On Cent	re Spacing	
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
	NI-20	16'-8"	15'-3"	14'-5"	N/A	16'-8"	15'-3"	14'-5"	N/A
	NI-40x	17'-11"	· 16'-11"	16'-1"	N/A	18'-5"	17'-1"	16'-1"	N/A
9-1/2"	NI-60	18'-2"	17'-1"	16'-4"	N/A	18'-7"	17'-4"	16'-4"	N/A
	NI-70	19'-2"	17'-10"	17'-2"	N/A	19'-7"	18'-3"	17'-7"	N/A
	NI-80	19'-5"	18'-0"	17'-4"	N/A	19'-10"	18'-5"	17'-8"	N/A
	NI-20	19'-6"	18'-1"	17'-3"	N/A	19'-11"	18'-3"	17'-3"	N/A
	NI-40x	21'-0"	19'-6"	18'-8"	N/A	21'-7"	20'-2"	19'-2"	N/A
	NI-60	21'-4"	19'-9"	18'-11"	N/A	21'-11"	20'-4"	19'-6"	N/A
11-7/8"	NI-70	22'-6"	20'-10"	19'-11"	N/A	23'-0"	21'-5"	20'-5"	N/A
	NI-80	22'-9"	21'-1"	20'-1"	N/A	23'-3"	21'-7"	20'-8"	N/A
	NI-90x	23'-4"	21'-8"	20'-8"	N/A	23'-10"	22'-2"	21'-2"	N/A
	NI-40x	23'-7"	21'-11"	20'-11"	N/A	24'-3"	22'-7"	21'-7"	N/A
	NI-60	24'-0"	22'-3"	21'-3"	N/A	24'-8"	22'-11"	21'-11"	N/A
14"	NI-70	25'-3"	23'-4"	22'-3"	N/A	25'-10"	24'-0"	22'-11"	N/A
	NI-80	25'-7"	23'-8"	22'-7"	N/A	26'-2"	24'-4"	23'-2"	N/A
	NI-90x	26'-4"	24'-4"	23'-3"	N/A	26'-10"	24'-11"	23'-9"	N/A
	NI-60	26'-5"	24'-6"	23'-4"	N/A	27'-2"	25'-3"	24'-2"	N/A
	NI-70	27'-9"	25'-8"	24'-6"	N/A	28'-5"	26'-5"	25'-2"	N/A
16"	NI-80	28'-2"	26'-1"	24'-10"	N/A	28'-10"	26'-9"	25'-6"	N/A
	NI-90x	29'-0"	26'-10"	25'-7"	N/A	29'-7"	27'-5"	26'-2"	N/A

<sup>1.</sup> Maximum clear span applicable to simple-span residential floor construction with a design live load of 40 psf and dead load of 15 psf. The ultimate limit states are based on the factored loads of 1.50L + 1.25D. The serviceability limit states include the consideration for floor vibration, a live load deflection limit of L/480 and a total load deflection limit of L/240.

<sup>2.</sup> Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 5/8 inch for a joist spacing of 19.2 inches or less. The composite floor may include 1/2 inch gypsum ceiling and/or one row of blocking at mid-span with strapping. Strapping shall be minimum 1x4 inch strap applied to underside of joists at blocking line or 1/2 inch gypsum ceiling attached to joists.

3. Minimum bearing length shall be 1-3/4 inches for the end bearings.

<sup>4.</sup> Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.

<sup>5.</sup> This span chart is based on uniform loads. For applications with other than uniformly distributed loads, an engineering analysis may be required based on the use of the design properties. Tables are based on Limit States Design per CSA O86-09, NBC 2010, and OBC 2012.

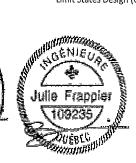
<sup>6.</sup> Joists shall be laterally supported at supports and continuously along the compression edge. Refer to technical documentation for installation guidelines and construction details. Nordic I-joists are listed in CCMC evaluation report 13032-R and APA Product Report PR-L274C.



Live Load = 40 psf, Dead Load = 15 psf Simple Spans, L/480 Deflection Limit 3/4" OSB G&N Sheathing







			B	are		1/2" Gypsum Ceiling					
Depth	Series		On Centi	e Spacing			On Centre Spacing				
•		12"	16"	19.2"	24"	12"	16"	19.2"	24"		
	NI-20	15'-10"	15'-0"	14'-5"	13'-5"	16'-4"	15'-5"	14'-6"	13'-5"		
	NI-40x	17'-0"	16'-0"	15'-5"	14'-9"	17'-5"	16'-5"	15'-10"	15'-2"		
9-1/2"	NI-60	17'-2"	16'-2"	15'-7"	14'-11"	17'-6"	16'-7"	15'-11"	15'-3"		
	NI-70	18'-0"	16'-11"	16'-3"	15'-7"	18'-5"	17'-3"	16'-7"	15'-11"		
	NI-80	18'-3"	17'-1"	16'-5"	15'-9"	18'-8"	17'-5"	16'-9"	16'-1"		
	NI-20	17'-10"	16'-10"	16'-2"	15'-6"	18'-6"	17'-4"	16'-9"	16'-1"		
	NI-40x	19'-4"	17'-11"	17'-3"	16'-6"	19'-11"	18'-6"	17'-9"	17'-0"		
44 7/01	NI-60	19'-7"	18'-2"	17'-5"	16'-9"	20'-2"	18'-9"	17'-11"	17'-2"		
11-7/8"	NI-70	20'-9"	19'-2"	18'-3"	17'-5"	21'-4"	19'-9"	18'-10"	17'-10"		
	NI-80	21'-1"	19'-5"	18'-6"	17'-7"	21'-7"	20'-0"	19'-0"	18'-0"		
	NI-90x	21'-8"	20'-0"	19'-1"	18'-0"	22'-2"	20'-6"	19'-6"	18'-6"		
	NI-40x	21'-5"	19'-10"	18'-11"	17'-11"	22'-1"	20'-6"	19'-7"	18'-7"		
	NI-60	21'-10"	20'-2"	19'-3"	18'-2"	22'-5"	20'-10"	19'-11"	18'-10"		
14"	NI-70	23'-0"	21'-3"	20'-3"	19'-2"	23'-8"	21'-11"	20'-10"	19'-9"		
	NI-80	23'-5"	21'-7"	20'-7"	19'-5"	24'-0"	22'-3"	21'-2"	20'-0"		
	NI-90x	24'-1"	22'-3"	21'-2"	20'-0"	24'-8"	22'-10"	21'-9"	20'-7"		
	NI-60	23'-9"	22'-0"	20'-11"	19'-10"	24'-6"	22'-9"	21'-8"	20'-6"		
4.01	NI-70	25'-1"	23'-2"	22'-0"	20'-10"	25'-9"	23'-10"	22'-9"	21'-6"		
16"	NI-80	25'-6"	23'-6"	22'-4"	21'-2"	26'-1"	24'-2"	23'-1"	21'-10"		
	NI-90x	26'-4"	24'-3"	23'-1"	21'-10"	26'-11"	24'-11"	23'-8"	22'-5"		

			Mid-Spar	n Blocking		Mid-Span Blocking and 1/2" Gypsum Ceiling On Centre Spacing				
Depth	Series		On Centr	e Spacing						
-,		12"	16"	19.2"	24"	12"	16"	19.2"	24"	
	NI-20	16'-10"	15'-5"	14'-6"	13'-5"	16'-10"	15'-5"	14'-6"	13'-5"	
	NI-40x	18'-8"	17'-2"	16'-3"	15'-2"	18'-10"	17'-2"	16'-3"	15'-2"	
9-1/2"	NI-60	18'-11"	17'-6"	16'-6"	15'-5"	19'-2"	17'-6"	16'-6"	15'-5"	
	NI-70	20'-0"	18'-7"	17'-9"	16'-7"	20'-5"	18'-11"	17'-10"	16'-7"	
	NI-80	20'-3"	18'-10"	17'-11"	16'-10"	20'-8"	19'-3"	18'-2"	16'-10"	
	NI-20	20'-1"	18'-5"	17'-5"	16'-2"	20'-1"	18'-5"	17'-5"	16'-2"	
	N1-40x	21'-10"	20'-4"	19'-4"	17'-8"	22'-5"	20'-6"	19'-4"	17'-8"	
44 7 (01)	NI-60	22'-1"	20'-7"	19'-7"	18 <sup>-</sup> -4"	22'-8"	20'-10"	19'-8"	18'-4"	
11-7/8"	NI-70	23'-4"	21'-8"	20'-8"	19'-7"	23'-10"	22'-3"	21'-2"	19'-9"	
	NI-80	23'-7"	21'-11"	20'-11"	19'-9"	24'-1"	22'-6"	21'-5"	20'-0"	
	NI-90x	24'-3"	22'-6"	21'-6"	20'-4"	24'-8"	23'-0"	22'-0"	20'-9"	
	NI-40x	24'-5"	22'-9"	21'-8"	19'-5"	25'-1"	23'-2"	21'-9"	19'-5"	
	NI-60	24'-10"	23'-1"	22'-0"	20'-10"	25'-6"	23'-8"	22'-4"	20'-10"	
14"	NI-70	26'-1"	24'-3"	23'-2"	21'-10"	26'-8"	24'-11"	23'-9"	22'-4"	
	NI-80	26'-6"	24'-7"	23'-5"	22'-2"	27'-1"	25'-3"	24'-1"	22'-9"	
	NI-90x	27'-3"	25'-4"	24'-1"	22'-9"	27'-9"	25'-11"	24'-8"	23'-4"	
	NI-60	27'-3"	25'-5"	24'-2"	22'-10"	28'-0"	26'-2"	24'-9"	23'-1"	
	NI-70	28'-8"	26'-8"	25'-4"	23'-11"	29'-3"	27'-4"	26'-1"	24'-8"	
16"	NI-80	29'-1"	27'-0"	25'-9"	24'-4"	29'-8"	27'-9"	26'-5"	25'-0"	
	NI-90x	29'-11"	27'-10"	26'-6"	25'-0"	30'-6"	28'-5"	27'-2"	25'-8"	

<sup>1.</sup> Maximum clear span applicable to simple-span residential floor construction with a design live load of 40 psf and dead load of 15 psf. The ultimate limit states are based on the factored loads of 1.50L + 1.25D. The serviceability limit states include the consideration for floor vibration, a live load deflection limit of L/480 and a total load deflection limit of L/240.

<sup>2.</sup> Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 3/4 inch for a joist spacing of 24 inches or less. The composite floor may include 1/2 inch gypsum ceiling and/or one row of blocking at mid-span with strapping. Strapping shall be minimum 1x4 inch strap applied to underside of joists at blocking line or 1/2 inch gypsum ceiling attached to joists.

3. Minimum bearing length shall be 1-3/4 inches for the end bearings.

<sup>4.</sup> Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.

<sup>5.</sup> This span chart is based on uniform loads. For applications with other than uniformly distributed loads, an engineering analysis may be required based on the use of the design properties. Tables are based on Limit States Design per CSA O86-09, NBC 2010, and OBC 2012.

<sup>6.</sup> Joists shall be laterally supported at supports and continuously along the compression edge. Refer to technical documentation for installation guidelines and construction details. Nordic I-joists are listed in CCMC evaluation report 13032-R and APA Product Report PR-L274C.



Live Load = 40 psf, Dead Load = 30 psf Simple Spans, L/480 Deflection Limit 5/8" OSB G&N Sheathing







	_		В	are			1/2" Gypsum Ceiling On Centre Spacing				
Depth	Series		On Centr	e Spacing							
•		12"	16"	19.2"	24"	12"	16"	19.2"	24"		
	NI-20	15'-1"	14'-1"	13'-3"	N/A	15'-7"	14'-1"	13'-3"	N/A		
	NI-40x	16'-1"	15'-2"	14'-8"	N/A	16'-7"	15'-7"	15'-1"	N/A		
9-1/2"	NI-60	16'-3"	15'-4"	14'-10"	N/A	16'-8"	15'-9"	15'-3"	N/A		
•	NI-70	17'-1"	16'-1"	15'-6"	N/A	17'-5"	16'-5"	15'-10"	N/A		
	NI-80	17'-3"	16'-3"	15'-8"	N/A	17'-8"	16'-7"	16'-0"	N/A		
	NI-20	16'-11"	16'-0"	15'-5"	N/A	17'-6"	16'-6"	16'-0"	N/A		
	NI-40x	18'-1"	17'-0"	16'-5"	N/A	18'-9"	17'-6"	16'-11"	N/A		
= /0!!	NI-60	18'-4"	17'-3"	16'-7"	N/A	19'-0"	17'-8"	17'-1"	N/A		
11-7/8"	NI-70	19'-6"	18'-0"	17'-4"	N/A	20'-1"	18'-7"	17'-9"	N/A		
	NI-80	19'-9"	18'-3"	17'-6"	N/A	20'-4"	18'-10"	17'-11"	N/A		
	NI-90x	20'-4"	18'-9"	17'-11"	N/A	20'-10"	19'-3"	18'-5"	N/A		
	NI-40x	20'-1"	18'-7"	17'-10"	N/A	20'-10"	19'-4"	18'-6"	N/A		
	NI-60	20'-5"	18'-11"	18'-1"	N/A	21'-2"	19'-7"	18'-9"	N/A		
14"	NI-70	21'-7"	20'-0"	19'-1"	N/A	22'-3"	20'-7"	19'-8"	N/A		
	NI-80	21'-11"	20'-3"	19'-4"	N/A	22'-7"	20'-11"	20'-0"	N/A		
	NI-90x	22'-7"	20'-11"	19'-11"	N/A	23'-3"	21'-6"	20'-6"	N/A		
	NI-60	22'-3"	20'-8"	19'-9"	N/A	23'-1"	21'-5"	20'-6"	N/A		
4.611	NI-70	23'-6"	21'-9"	20'-9"	N/A	24'-3"	22'-5"	21'-5"	N/A		
16"	NI-80	23'-11"	22'-1"	21'-1"	N/A	24'-8"	22'-10"	21'-9"	N/A		
•	NI-90x	24'-8"	22'-9"	21'-9"	N/A	25'-4"	23'-5"	22'-4"	N/A		

			Mid-Spar	n Blocking	Mid-Span Blocking and 1/2" Gypsum Ceiling					
Depth	Series		On Centr	e Spacing		On Centre Spacing				
<b>,</b>		12"	16"	19.2"	24"	12"	16"	19.2"	24"	
	NI-20	15'-7"	14'-1"	13'-3"	N/A	15'-7"	14'-1"	13'-3"	N/A	
	NI-40x	17'-9"	16'-1"	15'-1"	N/A	17'-9"	16'-1 <b>"</b>	15'-1"	N/A	
9-1/2"	NI-60	18'-1"	16'-4"	15'-4"	N/A	18'-1"	16'-4"	15'-4"	N/A	
	NI-70	19'-2"	17'-10"	16'-9"	N/A	19'-7"	17'-10"	16'-9"	N/A	
	NI-80	19'-5"	18'-0"	17'-1"	N/A	19'-10"	18'-3"	17'-1"	N/A	
	NI-20	18'-9"	17'-0"	16'-0"	N/A	18'-9"	17'-0"	16'-0"	N/A	
	NI-40x	21'-0"	19'-3"	17'-9"	N/A	21'-3"	19'-3"	17'-9"	N/A	
	NI-60	21'-4"	19'-8"	18'-5"	N/A	21'-8"	19'-8"	18'-5"	N/A	
11-7/8"	NI-70	22'-6"	20'-10"	19'-11"	N/A	23'-0"	21'-4"	20'-0"	N/A	
	NI-80	22'-9"	21'-1"	20'-1"	N/A	23'-3"	21'-7"	20'-5"	N/A	
	NI-90x	23'-4"	21'-8"	20'-8"	N/A	23'-10"	22'-2"	21'-2"	N/A	
	NI-40x	23'-7"	21'-5"	19'-6"	N/A	24'-1"	21'-5"	19'-6"	N/A	
	NI-60	24'-0"	22'-3"	21'-0"	N/A	24'-8"	22'-5"	21'-0"	N/A	
14"	NI-70	25'-3"	23'-4"	22'-3"	N/A	25'-10"	24'-0"	22'-9"	N/A	
	NI-80	25'-7"	23'-8"	22'-7"	N/A	26'-2"	24'-4"	23'-2"	N/A	
	NI-90x	26'-4"	24'-4"	23'-3"	N/A	26'-10"	24'-11"	23'-9"	N/A	
	NI-60	26'-5"	24'-6"	23'-4"	N/A	27'-2"	24'-10"	23'-4"	N/A	
	NI-70	27'-9"	25'-8"	24'-6"	N/A	28'-5"	26'-5"	25'-2"	N/A	
16"	NI-80	28'-2"	26'-1"	24'-10"	N/A	28'-10"	26'-9"	25'-6"	N/A	
	NI-90x	29'-0"	26'-10"	25'-7"	N/A	29'-7"	27'-5"	26'-2"	N/A	

- 1. Maximum clear span applicable to simple-span residential floor construction with a design live load of 40 psf and dead load of 30 psf. The ultimate limit states are based on the factored loads of 1.50L + 1.25D. The serviceability limit states include the consideration for floor vibration, a live load deflection limit of L/480 and a total load deflection limit of L/240.
- 2. Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 5/8 inch for a joist spacing of 19.2 inches or less. The composite floor may include 1/2 inch gypsum ceiling and/or one row of blocking at mid-span with strapping. Strapping shall be minimum 1x4 inch strap applied to underside of joists at blocking line or 1/2 inch gypsum ceiling attached to joists.
- 3. Minimum bearing length shall be 1-3/4 inches for the end bearings.
- 4. Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.
- 5. This span chart is based on uniform loads. For applications with other than uniformly distributed loads, an engineering analysis may be required based on the use of the design properties. Tables are based on Limit States Design per CSA O86-09, NBC 2010, and OBC 2012.
- 6. Joists shall be laterally supported at supports and continuously along the compression edge. Refer to technical documentation for installation guidelines and construction details. Nordic I-joists are listed in CCMC evaluation report 13032-R and APA Product Report PR-L274C.



Live Load = 40 psf, Dead Load = 30 psf Simple Spans, L/480 Deflection Limit 3/4" OSB G&N Sheathing



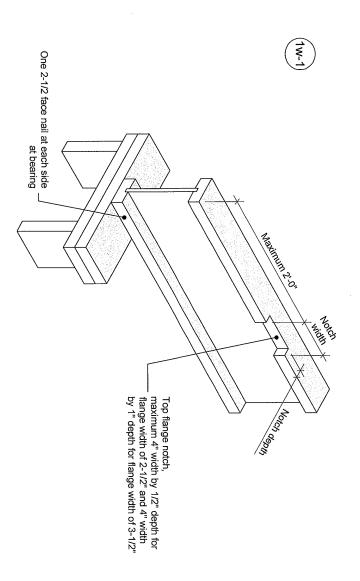


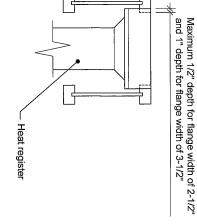


			В	are		1/2" Gypsum Ceiling					
Depth	Series		On Cent	re Spacing			On Centre Spacing				
		12"	16"	19.2"	24"	12"	16"	19.2"	24"		
	NI-20	15'-7"	14'-2"	13'-4"	12'-4"	15'-7"	14'-2"	13'-4"	12'-4"		
	NI-40x	17'-0"	16'-0"	15'-1"	13'-11"	17'-5"	16'-1"	15'-1"	13'-11"		
9-1/2"	NI-60	17'-2"	16'-2"	15'-5"	14'-3"	17'-6"	16'-5"	15'-5"	14'-3"		
	NI-70	18'-0"	16'-11"	16'-3"	15'-6"	18'-5"	17'-3"	16'-7"	15'-6"		
	NI-80	18'-3"	17'-1"	16'-5"	15'-9"	18'-8"	17'-5"	16'-9"	15'-10"		
	NI-20	17'-10"	16'-10"	16'-0"	14'-10"	18'-6"	17'-1"	16'-0"	14'-10"		
	NI-40x	19'-4"	17'-11"	17'-3"	15'-10"	19'-11"	18'-6"	17'-9"	15'-10"		
11 7/0"	NI-60	19'-7"	18'-2"	17'-5"	16'-9"	20'-2"	18'-9"	17'-11"	17'-1"		
11-7/8"	N1-70	20'-9"	19'-2"	18'-3"	17'-5"	21'-4"	19'-9"	18'-10"	17'-10"		
	NI-80	21'-1"	19'-5"	18'-6"	17'-7"	21'-7"	20'-0"	19'-0"	18'-0"		
	NI-90x	21'-8"	20'-0"	19'-1"	18'-0"	22'-2"	20'-6"	19'-6"	18'-6"		
	NI-40x	21'-5"	19'-10"	18'-11"	17'-5"	22'-1"	20'-6"	19'-6"	17'-5"		
	NI-60	21'-10"	20'-2"	19'-3"	18'-2"	22'-5"	20'-10"	19'-11"	18'-10"		
14"	NI-70	23'-0"	21'-3"	20'-3"	19'-2"	23'-8"	21'-11"	20'-10"	19'-9"		
	NI-80	23'-5"	21'-7"	20'-7"	19'-5"	24'-0"	22'-3"	21'-2"	20'-0"		
	NI-90x	24'-1"	22'-3"	21'-2"	20'-0"	24'-8"	22'-10"	21'-9"	20'-7"		
	NI-60	23'-9"	22'-0"	20'-11"	19'-10"	24'-6"	22'-9"	21'-8"	20'-6"		
164	NI-70	25'-1"	23'-2"	22'-0"	20'-10"	25'-9"	23'-10"	22'-9"	21'-6"		
16"	NI-80	25'-6"	23'-6"	22'-4"	21'-2"	26'-1"	24'-2"	23'-1"	21'-10"		
	NI-90x	26'-4"	24'-3"	23'-1"	21'-10"	26'-11"	24'-11"	23'-8"	22'-5"		

			Mid-Spa	n Blocking		Mid-Span Blocking and 1/2" Gypsum Ceiling				
Depth	Series		On Cent	re Spacing			On Cent	re Spacing		
		12"	16"	19.2"	24"	12"	16"	19.2"	24"	
	NI-20	15'-7"	14'-2"	13'-4"	12'-4"	15'-7"	14'-2"	13'-4"	12'-4"	
	NI-40x	17'-9"	16'-1"	15'-1"	13'-11"	17'-9"	16'-1"	15'-1"	13'-11"	
9-1/2"	NI-60	18'-1"	16'-5"	15'-5"	14'-3"	18'-1"	16'-5"	15'-5"	14'-3"	
	NI-70	19'-10"	17'-11"	16'-9"	15'-6"	19'-10"	17'-11"	16'-9"	15'-6"	
	NI-80	20'-2"	18'-3"	17'-1"	15'-10"	20'-2"	18'-3"	17'-1"	15'-10"	
(01)	NI-20	18'-10"	17'-1"	16'-0"	14'-10"	18'-10"	17'-1"	16'-0"	14'-10"	
	NI-40x	21'-3"	19'-3"	17'-9"	15'-10"	21'-3"	19'-3"	17'-9"	15'-10"	
	NI-60	21'-9"	19'-8"	18'-5"	17'-1"	21'-9"	19'-8"	18'-5"	17'-1"	
11-7/8"	NI-70	23'-4"	21'-5"	20'-1"	18'-6"	23'-8"	21'-5"	20'-1"	18'-6"	
	NI-80	23'-7"	21'-10"	20'-5"	18'-11"	24'-1"	21'-10"	20'-5"	18'-11"	
	NI-90x	24'-3"	22'-6"	21'-3"	19'-7"	24'-8"	22'-7"	21'-3"	19'-7"	
	NI-40x	24'-2"	21'-5"	19'-6"	17'-5"	24'-2"	21'-5"	19'-6"	17'-5"	
	NI-60	24'-9"	22'-5"	21'-0"	19'-6"	24'-9"	22'-5"	21'-0"	19'-6"	
14"	NI-70	26'-1"	24'-3"	22'-9"	21'-0"	26'-8"	24'-3"	22'-9"	21'-0"	
	NI-80	26'-6"	24'-7"	23'-3"	21'-6"	27'-1"	24'-10"	23'-3"	21'-6"	
	NI-90x	27'-3"	25'-4"	24'-1"	22'-4"	27'-9"	25'-10"	24'-3"	22'-4"	
	NI-60	27'-3"	24'-11"	23'-5"	21'-7"	27'-6"	24'-11"	23'-5"	21'-7"	
1.01	NI-70	28'-8"	26'-8"	25'-3"	23'-4"	29'-3"	26'-11"	25'-3"	23'-4"	
16"	NI-80	29'-1"	27'-0"	25'-9"	23'-10"	29'-8"	27'-6"	25'-10"	23'-10"	
	NI-90x	29'-11"	27'-10"	26'-6"	24'-10"	30'-6"	28'-5"	26'-11"	24'-10"	

- 1. Maximum clear span applicable to simple-span residential floor construction with a design live load of 40 psf and dead load of 30 psf. The ultimate limit states are based on the factored loads of 1.50L + 1.25D. The serviceability limit states include the consideration for floor vibration, a live load deflection limit of L/480 and a total load deflection limit of L/240.
- 2. Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 3/4 inch for a joist spacing of 24 inches or less. The composite floor may include 1/2 inch gypsum ceiling and/or one row of blocking at mid-span with strapping. Strapping shall be minimum 1x4 inch strap applied to underside of joists at blocking line or 1/2 inch gypsum ceiling attached to joists.
- 3. Minimum bearing length shall be 1-3/4 inches for the end bearings.
- 4. Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.
- 5. This span chart is based on uniform loads. For applications with other than uniformly distributed loads, an engineering analysis may be required based on the use of the design properties. Tables are based on Limit States Design per CSA O86-09, NBC 2010, and OBC 2012.
- 6. Joists shall be laterally supported at supports and continuously along the compression edge. Refer to technical documentation for installation guidelines and construction details. Nordic I-joists are listed in CCMC evaluation report 13032-R and APA Product Report PR-L274C.





- Blocking required at bearing for lateral support, not shown for clarity.
   The maximum dimensions for a notch on the side of the top flange are 4-inch width by 1/2-inch depth for flange width of 2-1/2 inches, and 4-inch width by 1-inch depth for flange width of 3-1/2 inches.
   This detail applies to simple-span joists and multiple-span joists where the notch is located at the end half-span.
   For other applications, contact Nordic Structures.

This document supersedes all previous versions. If the document has been in effect for more than one year, consult nordic.ca or contact Nordic Structures.

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.

NORDIC STRUCTURES

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CATEGORY

I-joist - Typical Floor Framing and Construction Details

Notch in I-joist for Heat Register

DATE

DOCUMENT

2018-04-10

1w-1 NUMBER



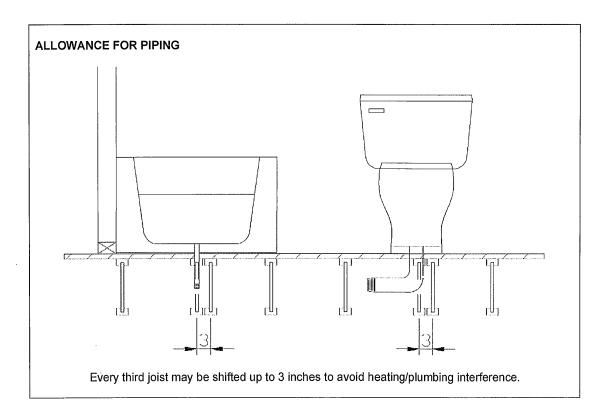
Limit States Design

# Allowance for Piping (Installation Notes)

The floor layouts have usually not been checked for heating and/or plumbing interference. On-site adjustment of joists of up to 3 inches is permitted to avoid interferences. When moving a joist, the subfloor thickness shall be checked with code requirements when the joist spacing exceeds 19.2 inches. Except for cutting to length, I-joist flanges should never be cut, drilled, or notched.

Installation of Nordic I-joists shall be as per *Nordic Joist Installation Guide for Residential Floors*. Refer to Tables 1 and 2 for maximum web hole and duct chase openings, respectively. These tables are based on the I-joists being used at their maximum spans. The minimum distance given may be reduced for shorter spans; contact your distributor for additional information.

The detail below shows the 3-inch allowance for piping. Every third joist may be shifted up to 3 inches to avoid heating/plumbing interference. For other applications, please contact your distributor.



Revised April 12, 2012